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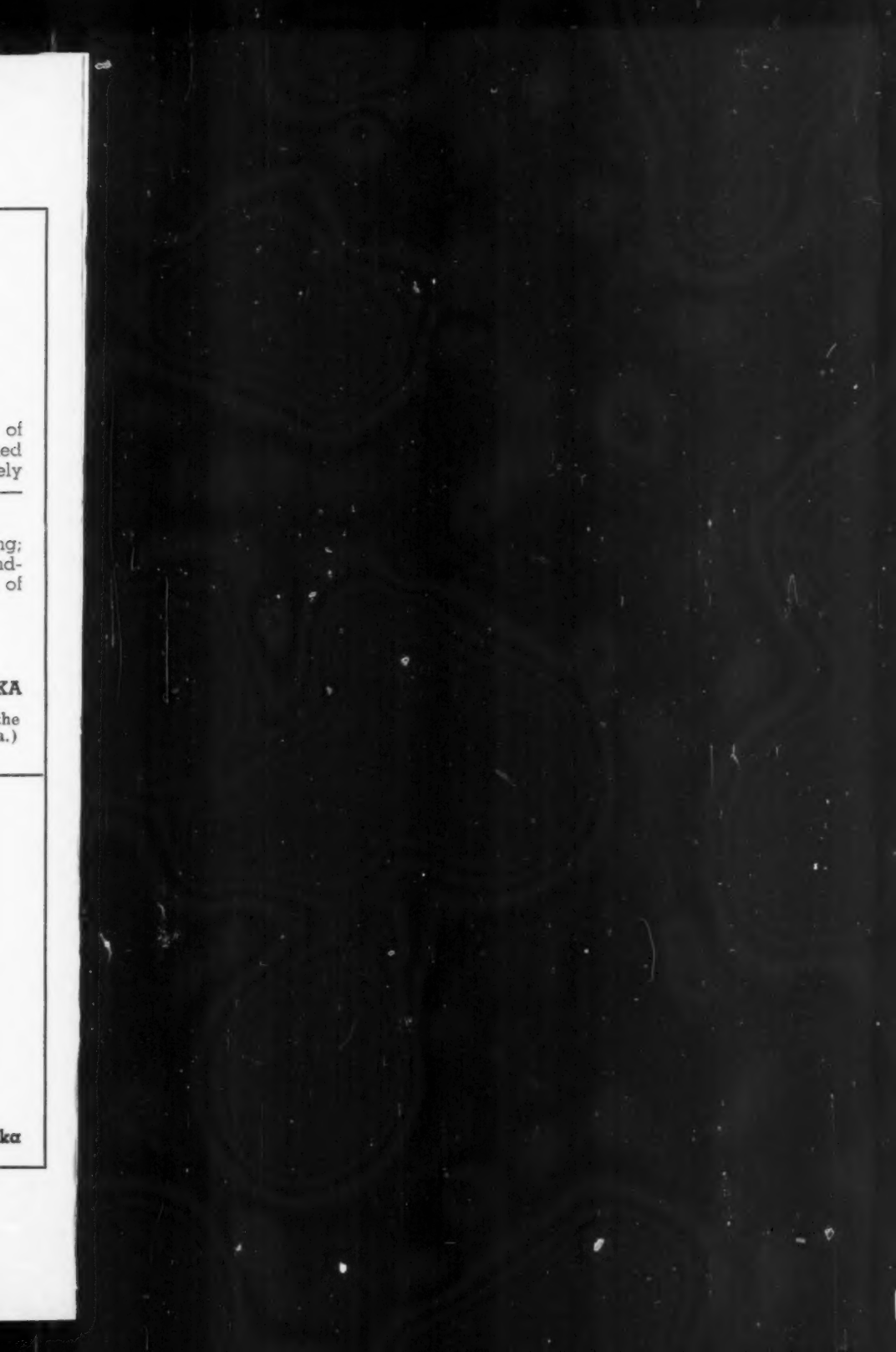

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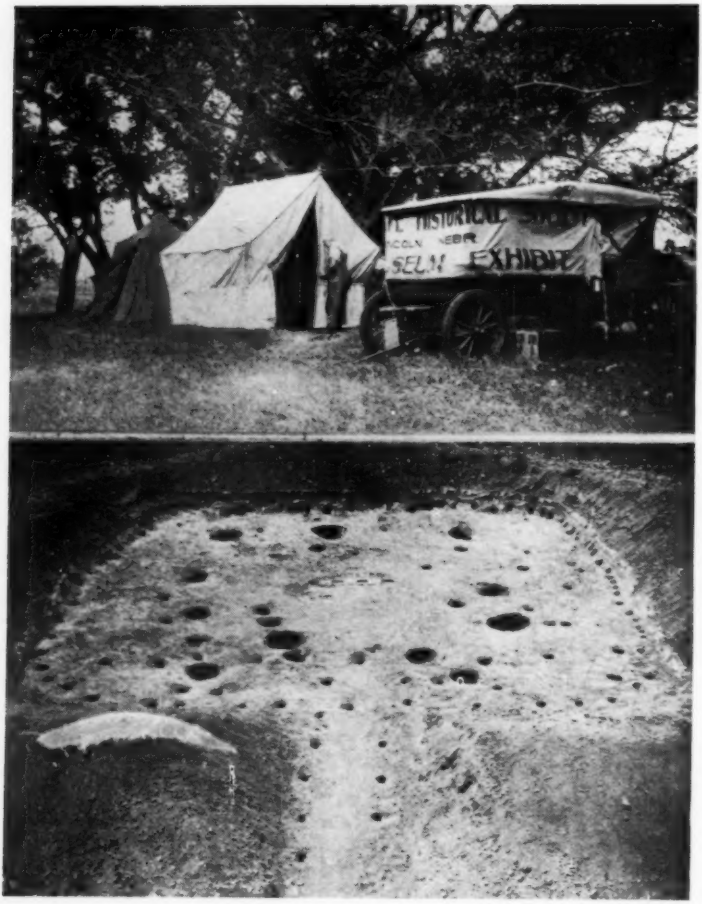

PLATE I

1. Camp of the Nebraska State Historical Society Archeological Survey at the Schrader site.

2. House 1, Schrader site; entrance to the east.

THE SCHRADER SITE

Prehistoric Village in Lancaster County, Nebraska.

By A. T. Hill and Paul Cooper

INTRODUCTION

The eastward extension of the Nebraska State Historical Society Archeological Survey under direction of A. T. Hill, was inaugurated in the spring of 1935 by excavation of three houses in a village about nine miles south of Lincoln on Salt Creek. The stream, composed here of fresh water, flows in a northwest direction through the west edge of Lincoln, where it turns and pursues a general northeasterly course to its confluence with the Platte near Ashland. Owing to the high salt content of the surface water in and below the vicinity of its junction with Little Salt Creek, the lower course of Salt Creek is markedly saline. That this source of salt constituted an attraction to the aboriginal inhabitants of the region is attested by recorded Omaha tradition and the testimony of an early explorer. Both Dorsey[1] and Fletcher and LaFlesche[2] state that the Omaha gathered the salt which had been deposited on the banks of Salt Creek near Lincoln. DeVilliers[3] quotes a document which he ascribes to Bourgmond and dates about 1717 to the effect that the Otoe lived ten leagues above the mouth of the Platte on the banks of a small saline stream from which they made salt. It seems only reasonable to suppose that this salt supply had been utilized for some time prior to white contact. Whether the peculiar character of the locality's surface water was a factor in the establishment of villages nearby is, of course, uncertain, but aboriginal occupation sites in the area are rather numerous. Within ten miles of Lincoln the Historical Society Survey has definitely located five and numerous others have been reported. The area, however, despite its relative isolation from the larger water courses, would be generally favorable for habitation by horticultural and hunting people. The topography is rolling or moderately hilly with excellent drainage, and perennial streams are frequent. Four types of soil characterize the surface, but two of these have such a limited distribution that they need not be considered. The uplands are composed mainly of Marshall silt loam, derived by weathering from loess deposits, which is an easily worked

[1] 1884, p. 309.
[2] 1911, p. 342.
[3] 1925, p. 61.

soil well adapted to the growth of corn. The most satisfactory soil from the standpoint of primitive horticulture, however, is the Wabash silt loam which covers the bottom lands; it has a high organic content and retains moisture well.[4] Timber is confined mainly to the areas near the streams, and consists principally of willow, box elder, elm, walnut, ash and cottonwood.

The Schrader site—so named because it occurs on the land of J. F. Schrader, to whom thanks are due for permission to excavate—is situated on the gradual slope and the edge of the table land above the west bank of Salt Creek, whose channel is at this point about ten feet wide and approximately fifteen feet below the valley floor. Despite its rapid fall and consequent deep cutting, the stream pursues a winding course, which has altered considerably in the past: an abandoned channel skirts the foot of the slope on which part of the village stood. While the number of houses is of course unknown, the area of occupation is rather extensive, comprising approximately fifteen acres. Test trenches readily revealed the presence of houses, for the fill here was of a rich black nature, easily distinguished from the natural soil. In accord with the Survey's policy of excavating as many sites as possible consistent with careful work, time was taken to locate definitely only four houses, but many more must exist.

The only previous observations at this site were made by Blackman in 1901, when he reported it as "an ancient camp site which embraces a number of small camps scattered with pot-shards and chipped flints".[5] It was his belief that lodge sites were lacking. As far as is known, there was no excavation until the spring of 1935.

That the occupation here was confined to one continuous period cannot be positively asserted on the basis of our present data, but the nature of all the houses excavated and the material recovered from them indicate that a single culture complex is represented. The principal features of the houses were constant, and there are no significant differences in the artifacts from the three excavations. As far as the evidence of the observable traits is concerned, the three lodges may have been inhabited simultaneously. The materials from the different excavation units were lumped together for common analysis and description only after detailed comparison had established their uniformity.

[4]Burgess and Worthen, 1908, pp. 943-62.
[5]Blackman, 1902, p. 296.

HOUSE 1

House 1 lay on a gradual southeast slope approximately 125 yards from the banks of Salt Creek, and an equal distance from the crest of the hill on whose slope it was situated. It was nearly square, with rounding corners: the two dimensions were 40 feet and 41.5 feet, the greater distance being from east to west. The entrance passage, consisting of three opposite pairs of posts and an additional outer post in line with the south row, extended slightly south of east from the east wall of the house. It was 4 feet wide and measured 11 feet from the house wall to the outermost pair of posts. As a result of the slope of the hill the depth of the floor beneath the present surface varied from 24 inches at the west wall to 12 inches at the east wall. The walls of the pit within which the house was constructed sloped to the floor on three sides, but the west wall was relatively perpendicular. The outer row of posts had been set somewhat into the west wall of the pit, as had some of the posts of the north and south sides in the west half of the house; the situation in the east half was uncertain, owing to the fact that cultivation had reached the floor there. The posts were relatively small, with diameters of from 4 to 8 inches, and, while they ranged from 6 to 54 inches apart, the majority were rather closely set. The greater intervals were in the east wall, while the most closely spaced posts were at the north. Approximately on a line between each of the corners and the center of the house were two larger posts which presumably served as roof supports. The outermost four posts were situated from 11.5 to 14 feet from the center of the house, and formed a somewhat asymmetrical quadrangle with sides measuring from 16.5 to 19.5 feet. Within this quadrangle the four other posts, which were somewhat smaller than those just described, were at radii of 8.5 to 9 feet from the house center.[6] Numerous additional post-moulds occurred within the pit, sometimes near the outer row of posts, and never within the portion of the house enclosed by the central roof supports. Presumably at least some of these posts served as supplementary roof supports. One of them was centered at the inner end of the entrance passage. The charred remains of the posts were rather frequently found in situ, and occasionally extended as much as a foot into the fill above the

[6]Double center posts are not uncommon in this area. Dr. L. N. Kunkel, in an unpublished paper "Archaeology of the Weeping Water Valley", reports their occurrence in two houses excavated by him, and they characterize houses in other sites as well.

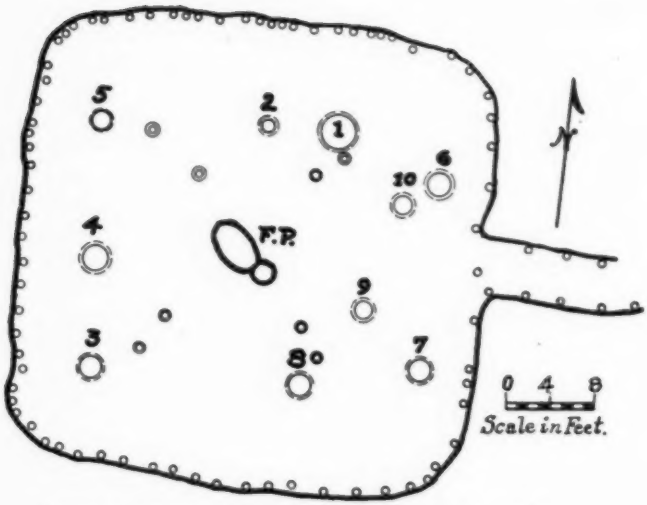

Figure 1. Ground Plan of House 1, Schrader Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-10, cache-pits; F. P., fireplace.

floor. Almost precisely in the center of the house an elliptical area of burned red clay, measuring 46 inches in greatest length along a northwest-southwest line and 42 inches in width, probably represented a fireplace. Immediately to the southeast of this area a basin-shaped fireplace 4 inches deep and 28 inches in diameter contained 3 inches of ashes and was underlain by burned clay. The fill within the pit was unusually black, with the consequence that the outlines of the pit were readily distinguished. The nature of this soil may account to some extent for the extremely poor preservation of the contained bone material. Besides the usual cultural detritus, consisting of fragmentary pottery, stone and bone, charred roof material occurred profusely in the fill, and burned floor areas in the northeast and northwest sections of the house further testify to the action of fire. That the west wall burned last is suggested by the presence on the floor near it of charred posts, whose complete burning was probably prevented by the falling of the earth covering. These posts lay in a general east-west direction, and probably represent uprights from the west wall. That they fell prior to the complete filling of Cache 5 is indicated by the fact that some of them lay partially within the top of

the cache. It is probable that the burning occurred some time subsequent to the abandonment of the house, but of course before there was a general collapse of the roof. Broken pottery and artifacts littered the floor, but complete vessels were lacking. A few charred corn kernels and husks were also found on the floor.

A total of ten cache-pits, all contemporaneous with the house, were present below the floor. They were distributed on all sides of the house, but always outside the quadrangle formed by the outer central roof supports. With the exception of two shallow perpendicular-walled pits, the sides dropped vertically for varying distances and then were undercut to give a cistern or bell shape; both the openings and floors were circular, and the latter were either flat or slightly concave. Top and bottom diameters, the total depth, and the depth at which the vertical walls give way to the sloping walls are given in the accompanying table. The soil within the pits was generally rather ashy and contained bone, stone, and pottery, usually in fragmentary condition; no intentionally cached material of any sort was present. There was no indication that the walls or floors had been lined or prepared in any way; they were apparent during excavation only as lines separating the fill from the undisturbed soil.

TABLE I.—DIMENSIONS OF HOUSE 1 CACHES

No.	Top Diam.	Bottom Diam.	Length of Neck	Depth
1	39 inches	54 inches	20 inches	48 inches
2	28 "	48 "	16 "	40 "
3	33 "	46 "	28 "	56 "
4	36 "	46 "	32 "	52 "
5	28 "	54 "	22 "	54 "
6	26 "	48 "	18 "	43 "
7	29 "	37 "	17 "	34 "
8	28 "	45 "	22 "	46 "
9	46 "	46 "		14 "
10	40 "	40 "		12 "

HOUSE 2

House 2 was situated on the summit of the hill approximately 280 feet northwest of House 1. The floor lay 18 inches below the present surface, at which depth the post moulds were revealed as set immediately within a sloping walled pit 25.5 feet square with rounded corners. Twenty-one posts were set from 30 to 80 inches apart, with an average interval of about 50 inches. Two pairs of posts constituted the roof supports of the entrance passage, which was 4 feet wide and extended 9 feet south-southeast. A slightly elliptical basin-shaped fireplace, 3 inches deep, 32 inches long, and 28

inches wide occupied the center of the house. Although it contained no ashes at the time of its discovery, the soil around and beneath it had been subjected to considerable firing. Between the fireplace and each corner, two rather large post moulds indicated the positions of the roof supports. The four innermost posts were 7½ to 8¼ feet distant from the center of the fireplace, and the others were 1½ to 3 feet nearer the corners. A single cache-pit, with a depth of 26 inches and a uniform diameter from top to bottom of 14 inches, was located 1½ feet from the periphery of the fireplace, and between it and the entrance. This pit contained refuse of the same character as that which littered the floor, namely, broken pottery, stone and bone. The bone material from the whole house was so badly disintegrated that it was impossible to remove any but a few fragments, and among these there were no artifacts. As any evidence of charred timbers was absent, the structure presumably was destroyed by the slower process of decay.

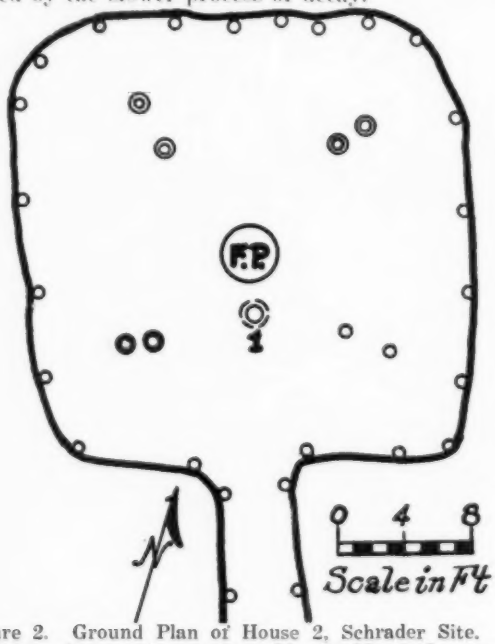

Figure 2. Ground Plan of House 2, Schrader Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1, cache-pit; F. P., fireplace.

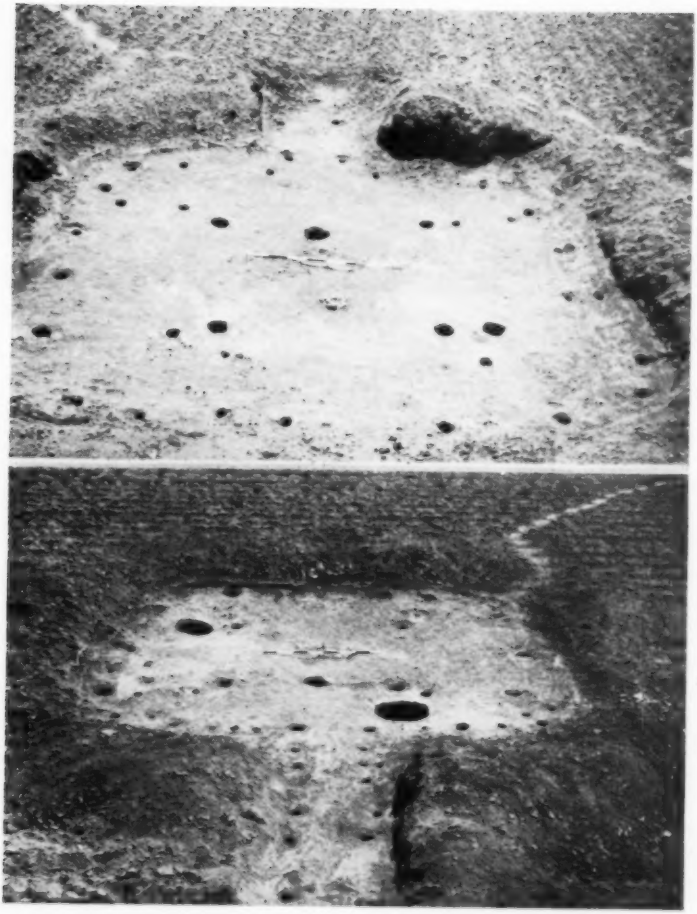

PLATE II

1. House 2, Schrader site; entrance to the south.
2. House 3, Schrader site; entrance to the west.

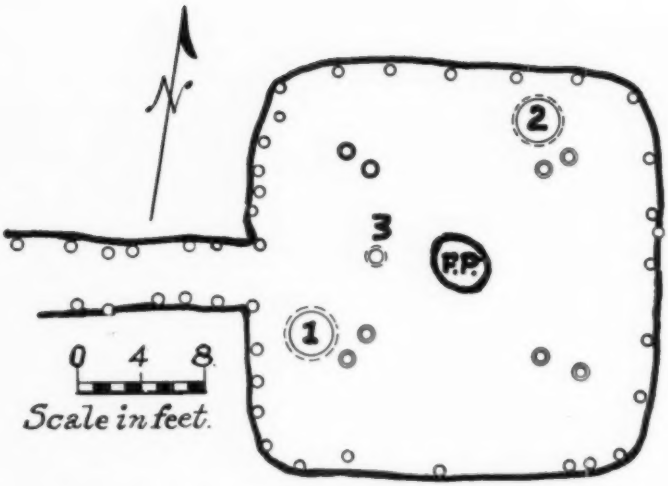

Figure 3. Ground Plan of House 3, Schrader Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-3, cache-pits; F. P., fireplace.

HOUSE 3

House 3, like the others, was square with rounding corners and had eight, rather than the usual four, corner roof support posts. Although, owing to prolonged cultivation, few moulds could be distinguished at the south side and sections of the north wall were indistinct, the east and west walls indicate irregular intervals between posts of 9 to 57 inches. The posts of the entrance passage, which extended 16 feet to the west, were similarly spaced. The elliptical fireplace, centrally located, was 40 inches long and 32 inches wide. The inner group of roof supports were 7 to 8½ feet from the center of the fireplace, the others were at radii of 8½ to 10½ feet. While the floor showed no evidence of burning or other special preparation, it was apparent at a depth of 15 inches below the present surface as the line of demarcation between the undisturbed clay and the overlying refuse-filled soil. Into the otherwise undisturbed zone below the floor were excavated three cache-pits, two of them near the outer walls and the other between the fireplace and the entrance. As is frequently true, the small pit is straight sided, but the two larger ones have the more usual bell shape. Cache 1, near the west wall immediately north of the entrance, had di-

ameters of 38 inches at the top and 66 inches at the bottom, and was 60 inches deep. Cache 2, 36 inches across the mouth, 39 inches across the bottom, and 40 inches deep, was near the northeast corner. Located at a distance of but 30 inches from the fireplace, Cache 3 had a diameter of 14 inches and a depth of 24 inches. As in the other houses, none of the pits had prepared walls or floor, and intentional caches of material were lacking. The artifacts from the cache-pits, as well as those from the floor and the fill above the floor, appeared to be accidental inclusions in the general refuse.

POTTERY

Among the artifacts recovered from the houses of this site, pottery is by far the most abundant. Although complete or restorable vessels number only four, of which two are miniature pots, the ceramic complex is represented by 3014 fragments, of which number 334 are rim sherds and 2671 are body sherds. The fragmentary pottery, like the other artifacts encountered in the excavation of the site, comprised part of the refuse filling abandoned cache-pits and occurring directly on the house floors or mingled with the fallen roof material. Partly because of its detrital nature, a large pro portion of the sherds are very small, and thus give us little information regarding the form and dimensions of the vessels they represent.

Although the paste of which this pottery is composed is not remarkable for uniformity, the range of variation is not wide. It is preponderantly rather compact, and, while a small proportion tends toward a slightly granular structure, a flaky tendency is much more characteristic. The granular structure correlates with a marked abundance of coarse tempering. The tempering material is composed, with very few exceptions, of crushed rock. Sand occurs rarely. 167 sherds contain cells from which crushed shell has probably been leached, and very rare pot-sherd fragments have been noted in otherwise grit-tempered paste. The tempering material varies in size from very small to rather large and in amount from very sparse to very abundant, but in both respects the majority of sherds are intermediate. There is little variability in hardness. Of the rather large number of specimens tested, none was found to be softer than 2 (gypsum) or harder than 3 (calcite). The large proportion of the grit-tempered pottery is very slightly softer than 3, while that with cell-tempering approximates a hardness of 2.

Variations in the firing of the pottery have resulted in a rather notable lack of uniformity in color. While the paste

is in the main dark gray or black, the surfaces range from gray to bright orange-red, and considerable variation even on a single vessel is common. The predominating color of the exterior surfaces, however, is a dirty buff, while interior surfaces are more often gray. The surface color is also apparent in a cross-section of the pottery to a depth varying apparently with the intensity or duration of firing, but this usually consists of a thin line adjacent to the surface. The exterior surfaces are frequently discolored by smoke.

A cord-wrapped paddle has been commonly applied to the exterior surface of the vessel, after which the cord-markings have been obliterated to varying degrees by smoothing either with the hands or with an implement. Of 2803 sherds, 1719 exhibit the vestiges of cord-markings. In view of the small size of many of the sherds and the fact that considerable areas of many pots have been so thoroughly smoothed that cord-markings have been entirely obliterated, the proportion originally paddled may be much larger than these numbers indicate. The smoothing has often been carelessly done, with the result that both exterior and interior surfaces are irregular and bear the striations of the implement used. A wash applied to the surface of vessels prior to firing is indicated by a number of sherds. In some cases this wash, usually dark brown in color, has scaled partially off, exposing an underlying surface on which the tempering material outcrops. Where this treatment occurs on cord-marked sherds, the wash seems to have been applied subsequent to the paddling and smoothing.

The variation in the thickness of sherds is not great. The measurement of a random sample of 231 sherds indicates a range of from 3 mm. to 10 mm. (1/8 to 13/32 inch). 216 are between 4 mm. (5/32 inch) and 8 mm. (5/16 inch) while thicknesses of 5 and 6 mm. (3/16 to 1/4 inch) are represented by 125. In general, there seems to be no portion of the vessel which is consistently thicker than the rest. Although some vessels are thickened somewhat at the neck and the immediately adjacent shoulder region, this is by no means the rule.

As has been previously stated, our knowledge of the pottery shapes has been necessarily derived mainly from a very few restorable vessels and large sherds, supplemented by a large collection of very small sherds. These data indicate that the typical vessel was invariably round at the mouth and in horizontal section, had a constricted neck, rounded shoulder, and rounded base. The only exceptions to this general form

PLATE III

1. Restored pot from House 3, Schrader site; height, 170 mm. (6¾ inches); greatest diameter, 202 mm. (8 inches).

2. Restored pot from House 3, Schrader site; height, about 320 mm. (12½ inches); greatest diameter, 320 mm. (12½ inches).

seem to be represented by a few cell-tempered sherds, some of which indicate a straight-sided bowl and others a pot with angular shoulder, flattened upper body, and with rim either very low or lacking. Extremely large vessels are lacking, and small to medium sized pots appear to be the rule. Miniature pots are represented by a rather large number of sherds, and are globular, with constricted necks and flaring rims.

Two disparate types of rim occur. The first, designated as Form A, comprises approximately 78% of the total collection of rim sherds (Figure 4, a-e). Characteristically it flares in a gradual curve from the constricted neck to a lip which is usually simply rounded, but occasionally is thickened, narrowed or flattened. In but ten instances it flares in a straight line from neck to lip, while vertical rims are entirely lacking. The degree of flare may be expressed in terms of the angle between the perpendicular and a straight line from the neck to the lip. The total range is from 7° to 57°, but the specimens representing the extremes are few. 82% of those sherds sufficiently complete to be measurable fall between 20° and 44° from the perpendicular; the mean angle is 32°. The height of rims of this type varies from 6mm. to 36 mm. (¼ to 1 7/16 inches), but the higher ones are rare. Of the measurable fragments, 96% are between 6 and 25 mm. (¼ to 1 inch), and 68% are between 11 and 20 mm. (7/16 to 13/16 inch) high; the mean height is approximately 16 mm. (5/8 inch).

Form B rims (Figure 4, f-j), which constitute approximately 22% of the total, are characterized by thickening which creates a collared appearance. Both interior and exterior profiles are rather variable. The interior profile varies as follows: a continuous curving flare to the lip, 32%; vertical, 13%; a flare to the point of greatest rim thickness or higher and then a recurving toward the interior of the vessel, 55%. In profile the exterior of the rim between the lip and the point of greatest thickness may be concave, straight or convex, but the majority fall into the last category. The height of these rims ranges from 20 to 44 mm. (13/16 to 1¾ inches), but a large proportion vary little from the mean height, which is approximately 30 mm. (1 3/16 inches).

Decoration is not an impressive feature of this pottery. With the exception of a few definitely atypical specimens to be described later, body decoration is lacking, while rim decoration is in general rather carelessly executed. Techniques are confined to incising and, less commonly, impressing. Modeled and painted ornamentation does not occur.

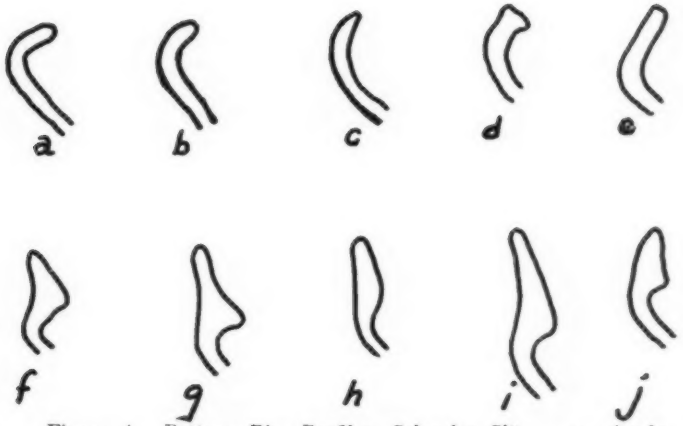

Figure 4. Pottery Rim Profiles, Schrader Site. a-e, simple flaring rim (Form A); f-j, collared rims (Form B). Inside surface of rim to left.

Incised lines vary from shallow and fine to wide and deep, but the majority tend toward the latter characteristics.

Of the Form A rims, approximately 58% are undecorated, while the remainder are decorated either on the lip or the exterior rim at its juncture with the lip. 62% of the decoration is on the lip alone, and 38% is on the exterior rim alone; no single specimen is decorated on both areas. Lip treatment consists usually of incised rectilinear designs, the most common of which are parallel diagonal and diagonal cross-hatched lines. Incised zigzag lines are less frequent, as are impressed diagonal lines and punctations. Decoration on the exterior rim is invariably a scalloped effect achieved by a series of notches made in the wet clay with the fingernail.

One treatment is almost invariably present on Form B rims, namely the scalloping of the lower margin of the collar by notching with the nail and occasionally pinching the resulting nodules between the fingers. While only one specimen lacks this element, other modes of decoration are rare. Incised or impressed diagonal lines occur on the lips of but 20% of the rims; otherwise the lip is left plain. In only three instances the exterior surface of the rim between the lip and the lower margin of the collar has been incised. The designs consist of cross-hatching and groups of diagonal lines alternating in direction to form triangular units. This

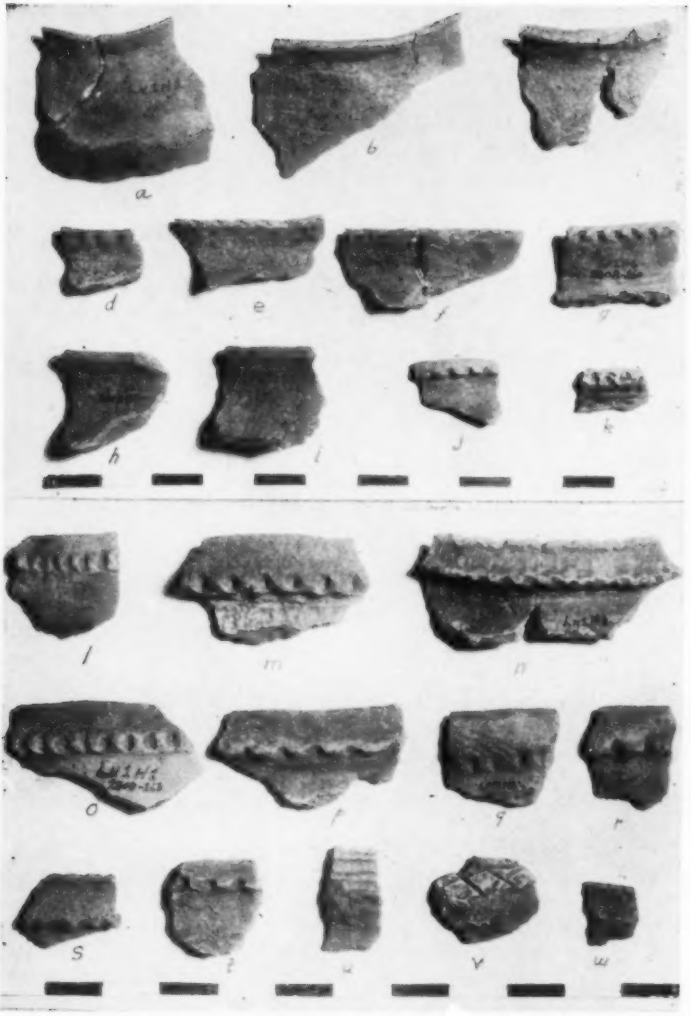

PLATE IV

Rimsherds, Schrader site. a-k, simple flaring rims (Form A); l-w, collared rims (Form B).

area has been roughened with a cord-wrapped paddle in somewhat less than 50% of the rims of this type. A certain amount of subsequent smoothing is usual.

Loop handles and lugs occur, though not abundantly, exclusively on vessels with Form A rims. Among all the pottery specimens from the houses of this site there are twenty-seven loop handles and seventeen lugs. Loop handles are always attached to the lip and the shoulder area below the neck, and appear usually to be riveted at the lower attachment. They are so attached to the lip that in general they constitute a projection of the curvature of the rim interior. They are either of uniform width or narrow somewhat from the lip to the shoulder, while in cross-section they vary from nearly round to strap-like, but the majority approximate the latter form. Presumably two such handles were placed on a pot; there is no evidence of a greater number. An eared effect is achieved on the oppositely placed handles of a miniature pot and on a single unattached handle, in the first instance by two small knobs on the handles themselves and in the latter by two tabs on the lip at either side of the handle.

Lugs usually consist merely of tongue-like projections from the lip of the vessel, which are either relatively horizontal or continue the curvature of the flaring rim. As a rule they are of approximately the same thickness as the adjacent portions of the rim, but they may be slightly thickened. Five of the fifteen lugs of this type are vertically perforated. Two perforated lugs resembling horizontally-placed loop handles occur on relatively straight-rimmed sherds, with their upper surfaces flush with the lip of the vessel.

A few exceptional vessels are indicated by the small number of cell-tempered sherds which are not too small to be suggestive of the forms and decorative techniques of the complete specimens to which they originally belonged. Besides bowls, there occur small vessels with angular shoulders, and flat upper bodies which either contract directly to the lip or roll slightly outward to form a very low rim (Plate V, j), and an apparently globular form, on which a flaring rim of unknown height sometimes occurs, but which in other cases lacks a rim (Plate V, i, k, l). Handles are present on both forms; where the method of attachment is determinable, it is by riveting. Body decoration consists of incised rectilinear and punctate elements. Owing to the fragmentary nature of the specimens the details of designs are not ascertainable, but several parallel lines in various combinations are always present. On one specimen four horizontal lines encircle the

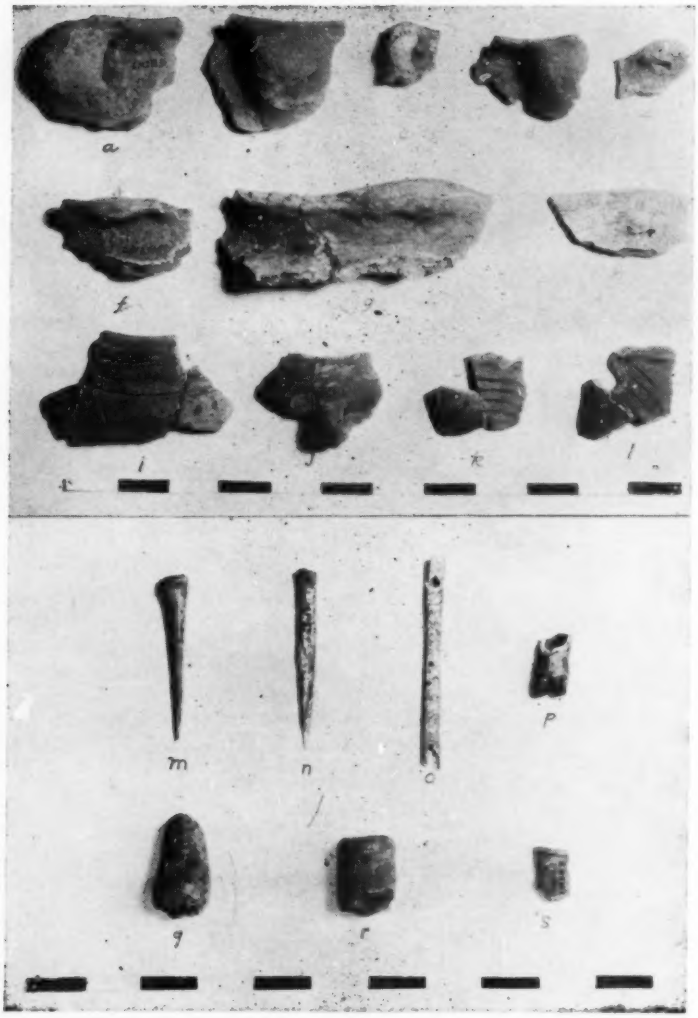

PLATE V

Pottery and bone artifacts, Schrader site. a-l, handles, lugs and sherds with body decoration; m-p, bone artifacts; q-s, pottery pipes.

upper body immediately below the lip, and beneath the lowest line punctations are arranged within panels formed by incised lines.

Pipes, which are represented by three fragments, are made exclusively of pottery clay. The small size of the two bowl fragments and the stem fragment make the shape of the complete specimens uncertain, but at least two of them are from either obtuse-angled elbow or curved tubular pipes.

WORK IN STONE

Artifacts of stone from this site are not numerous and the range of forms is limited; this is especially true of objects of ground stone. Furthermore, no forms occur which distinguish the culture of this village from that of any of the sedentary horticulture peoples thus far known in Nebraska. All forms found here occur universally in the earth-lodge villages thus far excavated in this state.

Ground celts number only four, and of these two are fragments. One of the complete specimens is made of an impure limestone roughly battered into shape and ground near the bit only. The other three specimens are made from a basaltic rock, and are carefully pecked into shape. They have a curving bit and are oval in cross-section, and the complete celt, which is pecked over all but ground only on the bit half, tapers to a narrow rounded butt.

Fifty-two fragments of Dakota sandstone have been utilized for abrading purposes. Most of them bear varying numbers of irregular grooves, which have possibly served in sharpening awls. While some of these are rough unshaped fragments, others are probably re-used fragments of former arrowshaft smoothers,[7] for they appear to be parts of boat-shaped forms and occasionally retain vestiges of smooth shallow grooves. One piece shows the grooves created in order to break it from a larger boat-shaped stone. Other small fragments have flat or slightly convex or concave surfaces which have been used for grinding or polishing.

Pecking stones are invariably water-worn pebbles, whose use for this purpose is indicated only by the battered condition of their ends. Rarely there is a flattened surface which has probably been used for grinding.

[7]Specimens of this type, as well as an arrowshaft straightener made from the scapula probably of a cow, were secured by the senior writer from Chief Crazy Bear, a Yankton Sioux who was using them in the construction of arrows for sale; they are now in the Hill collection at the State Historical Society Museum in Lincoln. See also LaFlesche, 1924, p. 113, for a description of their use.

A number of hematite fragments bear marks which appear to be the result of removing portions, presumably for paint. A few fragments of limonite were possibly intended to serve the same function, but they are without any tool marks.

Although no artifacts of catlinite were encountered, a few small fragments apparently of this material exhibit the results of cutting and slight polishing.

Among the chipped stone artifacts projectile points are the most abundant. Of the thirty-one specimens, twenty-nine are classified as arrow points, all triangular. Plain triangular and notched points are represented in approximately equal numbers; there are eleven unnotched and thirteen notched points. The forms represented and their frequency are indicated in the following table:

Triangular, unnotched, straight base (NBa)	10
Triangular, unnotched, convex base (NBc)	1
Triangular, straight-base, 2 side notches (NBa1)	2
Triangular, straight-base, 2 side notches, base notch (NBa2)	1
Triangular, straight base, 4 side notches, base notch (NBa3)	1
Triangular, straight base, 4 side nothes (NBa4)	4
Triangular, concave base, 2 side notches (NBb1)	4
Triangular, concave base, 4 side notches, base notch (NBb3)	1
Indeterminate	5
Total	29

The size of points correlates to some extent with their form. Although there is overlapping, the plain triangular are in general larger than the notched types. The notched points range in length from 21 mm. to 36 mm. (12/16 to 1 7/16 inches), with three specimens exceeding 30 mm. (1 3/16 inches), while the lengths of the unnotched points range from 28 mm. to 55 mm. (1 1/8 to 2 3/16 inches), and only one specimen is shorter than 35 mm. (1 3/8 inches). Thus, while this class of artifact is usually rather well made and the form is triangular, a rather heavy point is the rule, and the small finely chipped triangular points so characteristic of protohistoric and historic cultures of the area are lacking.

Two larger points, too large and heavy for use on arrow shafts, are classified as lance heads. One, measuring 95 mm. (3 3/4 inches) in length by 36 mm. (1 7/16 inches) in width, is triangular with a straight base and two side notches; the other, which is 59 mm. (2 5/16 inches) long and 31 mm. (1 1/4 inches) wide, is leaf-shaped with a straight base.

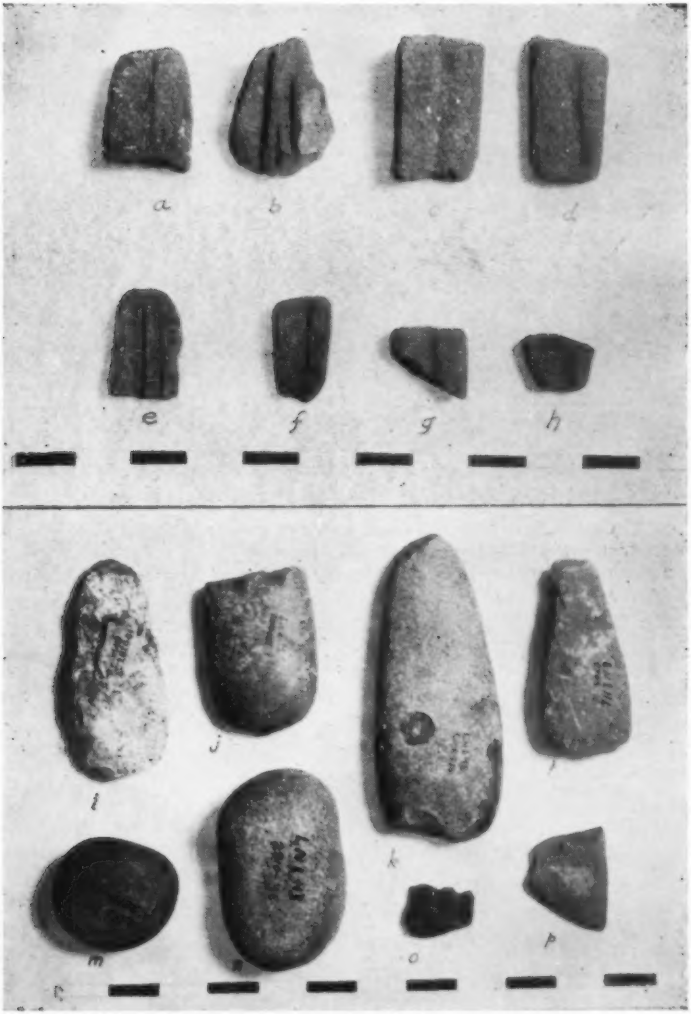

PLATE VI

Ground stone artifacts, Schrader site. a-h, Dakota sandstone abraders; i-l, celts; m, n, hammerstones; o, hematite fragment; p, catlinite fragment.

Projectile points are approximately equalled in number by end scrapers, which are represented in the collection by twenty-eight definitely identifiable specimens and probably five other fragments. The ventral surface almost invariably consists of the unretouched original flake surface, and the dorsal surface is characterized, with but two exceptions, by a longitudinal keel created usually by flaking from both edges but occasionally by coarse longitudinal flakes. While their proportions vary, the sides usually taper from the cutting edge to a fairly pointed butt, thus giving a roughly triangular shape to the implement. The variations in size and proportions are indicated by the following dimensions of the twenty-three complete specimens:

No.	Length	Greatest Width
1	109 mm. (4 9/32 inches)	32 mm. (1 1/4 inches)
2	72 " (2 27/32 ")	26 " (1 1/32 ")
3	57 " (2 1/4 ")	25 " (1 ")
4	57 " (2 1/4 ")	23 " (29/32 ")
5	57 " (2 1/4 ")	27 " (1 1/16 ")
6	57 " (2 1/4 ")	22 " (7/8 ")
7	53 " (2 3/32 ")	27 " (1 1/16 ")
8	53 " (2 3/32 ")	27 " (1 1/16 ")
9	51 " (2 ")	25 " (1 ")
10	49 " (1 15/16 ")	27 " (1 1/16 ")
11	48 " (1 29/32 ")	21 " (13/16 ")
12	45 " (1 25/32 ")	26 " (1 1/32 ")
13	49 " (1 15/16 ")	21 " (13/16 ")
14	42 " (1 21/32 ")	23 " (29/32 ")
15	39 " (1 17/32 ")	25 " (1 ")
16	40 " (1 9/16 ")	25 " (1 ")
17	43 " (1 23/32 ")	25 " (1 ")
18	42 " (1 21/32 ")	26 " (1 1/32 ")
19	42 " (1 21/32 ")	24 " (15/16 ")
20	39 " (1 17/32 ")	21 " (13/16 ")
21	37 " (1 7/16 ")	21 " (13/16 ")
22	35 " (1 3/8 ")	25 " (1 ")
23	30 " (1 3/16 ")	24 " (15/16 ")

Knives and scrapers are of various types, each of which is represented by rather few specimens. Seven side scrapers, resembling the end scrapers in their unretouched, often concave, ventral surfaces and keeled dorsal surfaces, but differing in that they are long and narrow and pointed or rounded at both ends, vary in length from 35 mm. (1 3/8 inches) to 112 mm. (4 7/16 inches) and in width from 16 mm. to 28

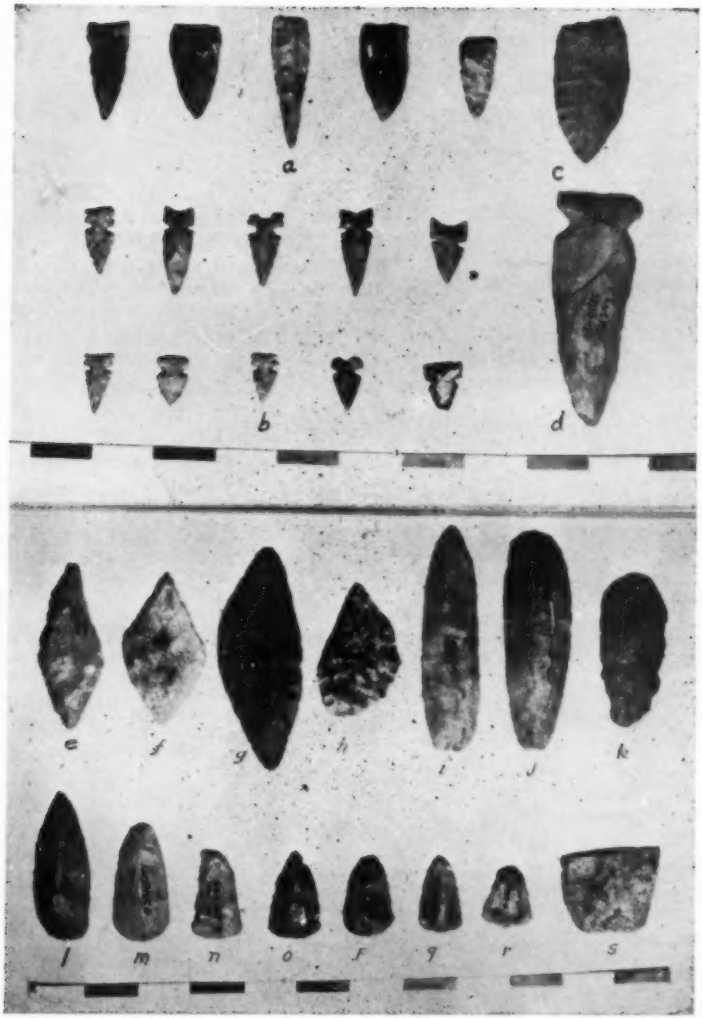

PLATE VII

Chipped flint artifacts, Schrader site. a-d, projectile points; e-s, knives and scrapers.

mm. (5/8 to 1 1/8 inches). The medial ridge or keel may be created either by chipping from each edge or by the removal of longitudinal flakes. Beveled knives are present, but are not numerous, and only two are definitely diamond-shaped. These, as well as three of attenuated form, have adjacent edges beveled in opposite directions. A roughly lunate blade has four beveled edges, as has one which is intermediate between leaf and diamond-shaped. An irregular blade has but two beveled edges, with a third slightly retouched. All of these blades are thin in cross-section and have been chipped on all surfaces. In every case, the edge held away from the user is beveled to the left. A fragment of a parallel-sided knife with a width of 19 mm. (3/4 inch) is worked on both surfaces and has the two edges beveled in opposite directions. Three roughly leaf-shaped blades, worked on both surfaces and retouched all around, are 48, 72 and 74 mm. (1 7/8, 2 27/32, and 2 15/16 inches) long respectively. A fragment of a sub-rectangular blade, 48 mm. (1 7/8 inches) wide and of unknown length, is well worked over all and is thin and lenticular in cross-section. All the remaining knives or scrapers are retouched on the edges only, and of these, four are long, relatively parallel-sided flakes. Numerous unshaped irregular flakes have been adapted to some use by slight retouching of one or more of the edges.

WORK IN BONE

Bone, both worked and unworked, was very rare in the soil of this site, and the small amount which occurred was very fragmentary and friable. The very poor preservation of the specimens found suggests that bone may have constituted a much more important part of the complex than its meager representation would indicate.

The presence of the bison scapula hoe is indicated by three small fragments, from which only some of the characteristics of the complete implement can be determined. In each case the spinous processes have been removed and ground down, and one fragment which includes a portion of the vertebral margin shows this edge to be sharpened and polished by use, while the adjacent edge bears two worn notches. There is no evidence regarding the treatment of the proximal articulation, a feature in which variation is common in this area.

Two awls made from split metapodial bones, with the butts formed by part of the proximal joint, measure 79 and 85 mm. (3 1/2 and 3 3/8 inches) in length. A fragment, similar in all respects except that the distal end has been broken,

is probably also an awl. A pointed canine ulna implement has probably been used as some sort of a graver rather than a perforator, as the shaft has been worked down to a blunt point.

Other bone objects are represented by single specimens. A small cylindrical bead is 15 mm. (19/32 inch) long; the diameter cannot be determined because of its fragmentary nature, but a very slender bone supplied the raw material. A fragment of a small rib (Plate V, o), 8 mm. (5/16 inch) wide, is unworked except near the unbroken end, which bears a slight notch. At a distance of 12 mm. (½ inch) from this end a biconical perforation 5 mm. (3/16 inch) in diameter occurs. The nature of the other end is, of course, unknown. The length of the fragment is 99 mm. (3 7/8 inches). A deer phalangeal bone, illustrated in Plate V, p, has had its proximal joint cut off and has been perforated by grooving through the concave portion of the distal articular surface. A good guess as to its function would seem to be that it served as a piece in the ring and pin game so widely distributed during the historic period.[8] A single canine mandible shows vestiges of red pigment on its surface, but there is no evidence of working.

WORK IN SHELL

Fragments of shell are very rare, and of the few found, none shows any evidence of having been worked. The very poor condition of the fragments leaves open the possibility that shells may originally have been more abundant.

FOOD REMAINS

The data from which can be inferred the food of these people are unfortunately limited, for, as previously stated, all but the most imperishable materials are rare and in poor condition. The small amount of bone material is so poorly preserved that specific identification has been possible for only a few specimens.[9] Among the mammals, the remains of the black-tailed deer (*Odocoileus hemionus*) (Rafinesque)

[8]This game consisted of a varying number of phalangeal bones strung on a thong, at one end of which was fastened a long needle and, among certain tribes of this area, at the other end several loops of glass beads. It occurs, with numerous variations, over a wide range. The specimen described from the Schrader site is identical to pieces of this game in the Nebraska Historical Society collections from the Rosebud Agency. Specimens of this same type collected from the Oglala and Brule Dakota are described and illustrated by Culin, 1907, p. 556.

[9]All identifications by T. M. Stout, Nebraska State Museum, University of Nebraska, Lincoln.

were most numerous, but bison bones (*Bison bison*) (Linnæus) were also rather common. The only other bones of this class which were even tentatively identifiable were probably those of the wolf (*Canis nubilus*) (Say). Two species of birds, neither identifiable, were also represented by a few bones, but fish remains were entirely absent, and molluscan remains consisted only of a very few fragments of shell.

Although agriculture must have been rather extensively practiced, the only vegetal remains present at the time of our excavation were a few charred kernels of corn which lay on the floor of House 1. The few species of plants and animals found in the excavation certainly represent a very small fraction of those used as food by the inhabitants of this village, and future excavation may expand the list.

SUMMARY AND CONCLUSIONS

The excavations of the Nebraska State Historical Society at the Schrader site was the first prosecuted in the immediate vicinity, although numerous sites to the north, east, and west had been previously investigated. Data on three houses, relatively large quantities of fragmentary pottery, and a presumably fair sample of work in stone were collected, but, probably owing to the acid nature of the soil, objects of bone and shell were very rare. The scarcity of bone artifacts is especially regrettable in view of the fact that such objects are as a rule well represented in the components with which this manifestation must be compared. While of course all the material culture of a group is never available to the archeologist, it is very desirable that analagous phases of the cultures being compared should be represented in their proper proportions. If, however, the absence of bone at the time of excavation denotes a corresponding lack of bone utilization by the group, comparison on the basis of traits now present is obviously justified. The latter situation is highly improbable and it seems almost certain that objects made from bone constituted a much more important part of this group's material culture than is indicated by the few specimens which have survived the destructive action of ground water.

Wedel and the present senior writer have previously suggested, on the basis of a preliminary study of the artifacts, that a culture hybrid between the upper Republican

and Nebraska aspects is represented here.[10] More detailed analysis of the complex represented confirms this conclusion. While the mechanisms by which the admixture of traits was accomplished are not clear, elements characteristic of both cultural divisions are present in this component. That a true amalgamation rather than a simple importation of foreign artifacts occurred is indicated by the manner in which various elements, particularly of the pottery, are blended. Previous mention of the occurrence together of Nebraska Culture and Upper Republican Culture traits is not lacking[11] but usually the situation has been described as an Upper Republican intrusion into Nebraska aspect sites.[12] In the present case, however, we can point to no aberrant traits, for the elements which appear to derive from different sources have been combined to constitute a single cultural pattern.

The house type and, in the main, the stone and bone artifacts occurring here are equally characteristic of the two major patterns considered, although there is a single exception which may be significant. Although the same general types of projectile points occur in sites of both aspects, the proportions seem consistently to differ. Plain triangular points predominate in Nebraska Culture sites and notched points are decidedly in the minority, but Upper Republican sites usually yield approximately equal proportions of the two types. The latter situation is also true of the Schrader component. It is mainly to the pottery, however, that we must look for light on the relationships of this cultural manifestation. The general nature of the paste, the occasional use of shell and sherds as tempering material, the predominance of buff surfaces, the general form, and the presence of handles and lugs are traits characteristic of the pattern common along the Missouri. On the other hand, collared rims point to an Upper Republican influence, but they constitute only 22% of the rim sherds, a much smaller proportion than occurs in sites of the latter culture, and are almost invariably undecorated except for scalloping on the lower margin of the collar and cord-paddle impressions. The proportion of

[10]Hill and Wedel, 1936, p. 3.

[11]Hill and Wedel, 1936, pp. 32,34,69; Strong 1935, pp. 173, 181, 287.

[12]That more or less pure Upper Republican sites may occur as far east as the Missouri River is suggested by the reported presence in the valley of Weeping Water Creek of houses yielding a majority of collared vessels, Kunkel, no date.

vessel bodies which have been cord-marked corresponds more closely with that for Upper Republican pottery, but subsequent smoothing is more frequent and thorough than is usual in that ceramic complex. The unthickened rims and lips bear incised decoration more frequently than do those of usual Nebraska Culture pottery, and in this respect there is a marked similarity to the Upper Republican. The presence of pottery pipes and the complete absence of stone pipes, however, point to a stronger influence by the former, and the abundance of miniature pots tends to corroborate this. From the foregoing it appears that the more fundamental characteristics are those typifying the Nebraska Culture, and that in some details Upper Republican influence is apparent. The obvious inference is that into a basically Nebraska aspect pattern have been incorporated a number of elements from the other aspect.

This sort of culture fusion is not uncommon in our area. In 1934 the Nebraska State Historical Society excavated in a village site near Minneapolis, Kansas, the pottery from which is similar in a number of respects to that from the Schrader site.[13] Such similarities include general form, color, the occurence of shell and pot sherds as tempering material, the presence of loop handles, and the same proportion of collared rims, which are decorated only by scalloping of the lower margin of the collar and by cord-paddle impressions. Along the Missouri River in southwestern Iowa predominantly Nebraska Culture pottery which includes some collared rims has been found on the surface. Keyes has ascribed it, as well as the house-pits and burial mounds in the vicinity, to a single culture complex, which he has designated the Glenwood Culture. Inasmuch as no excavation has been done, it is not certain that a single complex is represented, and but a single general report even of the surface finds is available;[14] nevertheless, the possibility that a manifestation similar to that at the Schrader site may be encountered there suggests itself. Investigations up to the present time have served to reveal the complexity of cultural contact and interplay in the prehistoric plains, but much more excavation will be required to elucidate the problems raised. The identity of the people who left traces of their hybridized culture at the Schrader site, and their temporal relations to other sites of the region are problems whose solution remain for the future.

[13]Wedel, 1935, pp. 225 ff.
[14]Strong, 1935, p. 287.

LIST OF TRAITS

Pottery

1. Grit tempering—94.5%. Sand rare.
2. Size of tempering varies, but usually medium.
3. Tempering material usually abundant.
4. Shell tempering—5.5%.
5. Potsherd fragments occur very rarely.
6. Hardness between 2 and 3. A large proportion is slightly less than 3.
7. Shell tempered ware has hardness of about 2.
8. Paste compact, varying from slightly granular to flaky, with the latter common.
9. Exterior surface color ranges from orange-red through light buff to gray. Large majority light buff.
10. Interior surface usually gray, but has same range as exterior.
11. Smoke blackening on exterior surface very common.
12. Color of paste usually dark gray, buff near the exterior surface.
13. Exterior surface of 61.3% of sherds roughened with cord-wrapped paddle, the remainder are smoothed.
14. Paddle-marks usually more or less obliterated by smoothing.
15. Surfaces usually roughly finished, either with the hand or tool.
16. Occasional wash or slip.
17. Mouth and horizontal section of body always round.
18. Constricted neck.
19. Rounded shoulder.
20. Rounded base.
21. Simple straight or flaring rim (Form A)—77.2%.
22. Form A: Nearly always recurving, and vary from slightly to pronouncedly flaring.
23. Form A: Rim height variable, but very low or very high rims rare. Average 15 mm.
24. Form A: Lip treatment variable; rounded, narrowed and rounded, thickened, or flattened. Most are rounded.
25. Form A: Decoration on this type of rim—42.4%.
26. Form A: Decoration on lip—62.4%; on rim exterior immediately adjacent to lip—37.6%.
27. Form A: Lip decoration; incised diagonal cross-hatching, incised or impressed parallel diagnoal lines, incised zigzag lines, and punctations.
28. Form A: Exterior rim decoration—scalloped effect produced by a series of notches made with the nail.
29. Collared rim (Form B)—22.8%.
30. Form B: Height of rims variable, but average 30 mm.

31. Form B: Interior profile of rims varies from flaring to secondary contracting; majority are of latter form.
32. Form B: Exterior profile of rims varies from pronouncedly concave to convex; the majority tend toward the latter.
33. Form B: Lower margin of collar almost invariably scalloped.
34. Form B: Other decoration almost lacking. Incised designs occur on the lip or rim of a very few sherds.
35. Form B: Rim cord-paddle marked in a large number of sherds. Usually more or less smoothed.
36. Thickness of sherds varies from 3 to 10 mm., but most fall between 4 and 8 mm.
37. Vessels usually small to medium in size.
38. Miniature pots numerous.
39. Loop handles occur (not abundantly) on Form A rims only, probably 2 on a vessel.
40. Loop handles most commonly strap-like and attached to lip and shoulder area below the neck.
41. Eared handles very rare.
42. Lugs occur on Form A rims only.
43. Lugs usually tongue-like projections from the lip, occasionally perforated.
44. Incised body, very rare. Occurs only on cell-tempered sherds.
45. Bowls and angular shouldered vessels, very rare; cell-tempered only.
46. Curved tubular or obtuse-angled elbow pipes.

Work in Stone

1. Arrow points triangular; approximately equal number notched and unnotched.
2. Notched points have varying numbers of notches.
3. Lance points side-notched triangular and leaf-shaped with straight base.
4. Beveled knives, either diamond-shaped or not.
5. Keeled end scrapers numerous.
6. Keeled end scrapers—most range from 35 to 57 mm. in length.
7. Keeled side scrapers.
8. Leaf-shaped knives.
9. Sub-rectangular knife.
10. Long flake knives, retouched only on edges.
11. Irregular flakes, retouched on one or more edges.
12. Chipped celt.
13. Ground celts with oval cross-section and narrow rounded butt.
14. Irregularly shaped sandstone abraders with irregular grooves.
15. Arrowshaft smoothers re-used as awl (?) sharpeners.

16. Sandstone abraders with flat or slightly concave surfaces.
17. Pebble pecking stones, occasionally with a flattened surface.
18. Hematite used for paint.
19. Catlinite (?) fragments, occasionally showing tool marks.

Work in Bone

1. Bison scapula hoes.
2. Scapula hoes have notches on margins adjacent to blade.
3. Awls of split metapodial
4. Graver (?) of canine ulna.
5. Small cylindrical bone bead.
6. Deer phalangeal bone, proximal joint removed by transverse cutting, distal joint perforated by grooving the articular surface.
7. Section of small rib grooved and perforated at one end.

Work in Shell

No evidence found.

Houses

1. Semi-subterranean.
2. Outer posts set immediately within the walls of pit.
3. Approximately square with rounded corners.
4. Four pair of central roof support posts.
5. Central fireplace.
6. Interior cache-pits, usually cistern-shaped, but occasionally cylindrical.
7. Entrance passage.

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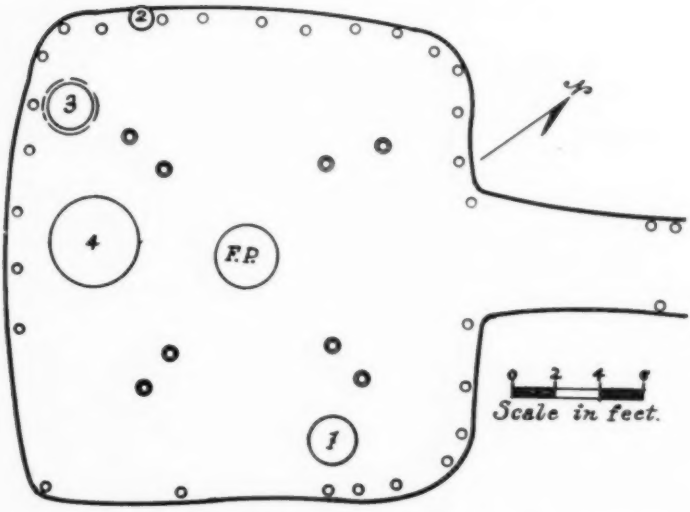

Figure 5. Ground Plan of House 1, Champe Site. ————, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-3, cache-pits; F. P., fireplace.

THE CHAMPE SITE

Excavation of A Prehistoric House In Douglas County, Nebraska

By A. T. Hill and Paul Cooper

INTRODUCTION

Abundant evidences of aboriginal occupation have been known for some time to be present along the Elkhorn River bluffs in the vicinity of the boundary between Douglas and Sarpy counties. In the spring of 1931, the University of Nebraska Archeological Survey, under the direction of Dr. W. D. Strong, and with the assistance of a number of interested individuals, trenched a single house-pit and two eminences which had the external appearance of artificial mounds on the Saunders site. Numerous additional indications of habitation extend south along the ridges for some distance into Sarpy County.

The Historical Society operations were carried out at two points in the area, the first of which, designated the Champe site, is on the farm of Mrs. Nettie Reeves about a half mile south of Strong's excavations. The second, Fremont 1, is approximately three-fourths of a mile further south and just across the county line on the land of R. D. Robinson. Although these two arbitrarily named sites are merely parts of a single inhabited strip of land, for purposes of study they are being considered as two distinct units. We wish to express our gratitude to the landowners and the tenants along the Elkhorn River who readily granted permission to excavate and extended every possible courtesy to the Survey.

The Champe site is situated at the margin of the uplands overlooking the extensive bottom lands through which flow the Elkhorn and Platte rivers. The Elkhorn pursues a tortuous and changing course, but in this vicinity it closely skirts the foot of the bluff. The bluffs here are broken by steep, short draws draining to the west, but only a short distance to the east is the watershed beyond which the drainage is eastward to the Missouri River. This site is separated from the Saunders site by a draw which carries water only in the spring and after rainfall. The uplands are covered here by Knox silt loam, which is a light-brown to pale yellow soil, unfavorable to the growth of corn except on the lower slopes. While the principal soil of the bottoms is Cass fine sandy loam, which is not well adapted to corn, there are small areas of Wabash silt loam, which, if well drained, constitute excellent corn land. Both the uplands and the bottoms were originally forested.

While the vegetation of the bottoms consisted principally of grasses, the streams were lined with cottonwood, elm, oak, willow, box elder, basswood, black walnut, hackberry, honey locust, and cedar. Hickory, elm, box elder, ash, sumac, scrubby burr oak, and some black walnut grew on the higher lands.

The work here consisted of exploratory trenches along the summit of the ridge in search of burials and the complete excavation of one house. The test trenches proved sterile, but the bones of a single burial which had been disturbed by cultivation were found on and just beneath the surface about forty feet east of House 1. This house, as well as others in the vicinity, was apparent on the cultivated surface as a circular area of discolored soil.

House 1

The Survey had been preceded in this house by diggers whose pits had apparently destroyed a few post moulds and obliterated the floor line at a few points, but fortunately the main features were not obscured. Complete excavation of a house here was considered important in the light of the results obtained by Strong in his excavation of House 1 of the Saunders site. Owing to the limited amount of time available, that house was tested by a series of trenches. The floor is described as being bowl-shaped and having an oval outline; no post moulds were observed.[1] The situation encountered in House 1 of the Champe site would seem to elucidate these rather puzzling features. As has already been mentioned, the surface discoloration revealing the presence of the lodge site was circular. As the fill within the pit was removed the floor appeared to be circular in outline and to slope up to the surface, rather than terminating at well defined walls. The usual outer row of post moulds did not appear, and the floor appeared to be underlain throughout by undisturbed yellow clay. Removal of this apparently undisturbed clay near the margins of the house to a depth equal to that of the floor at the center revealed, however, that the outer posts were actually present and that the level floor could be traced to a point slightly beyond them. Complete excavation to the actual floor level, which averaged about 35 inches deep, proved that this was a square house with rounded corners and with dimensions of approximately 21 feet. Sometime subsequent to its abandonment the presumably vertical or nearly vertical walls of the pit had slumped in, covering the periphery of the floor with a deposit of unmixed yellow soil which created the deceptive appearance of a round bowl-shaped pit. It seems more than probable that complete excavation of the Saunders site house would have indicated a similar situation.

[1]Strong, 1935, pp. 172, 173.

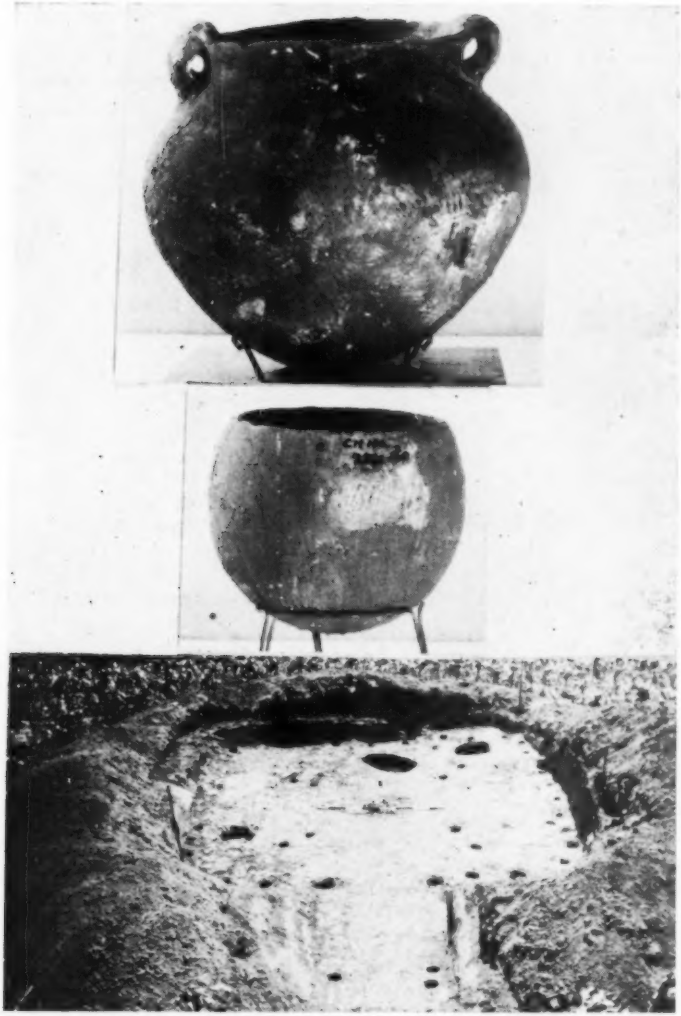

PLATE VIII

1. Restored pot from House 1, Champe site; height, 185 mm. (7¼ inches); greatest diameter, 206 mm. (8⅛ inches).

2. Restored bowl from House 1, Champe site; height, about 98 mm. (3⅞ inches); greatest diameter, 117 mm. (4⅝ inches).

3. House 1, Champe site; entrance to the northeast.

The posts in the outer row, except where they had been obliterated by the spades of previous diggers, were spaced at intervals of from 12 to 30 inches, and in three cases they had been supplemented by an additional post set slightly to the interior of the house. Between the fireplace, which was 30 inches in diameter, and each corner of the house two moulds (eight altogether) presumably marked the locations of roof support posts. The innermost posts were approximately 5.5 feet from the center of the fireplace, the others about 2 feet farther toward the corners of the house; they were uniformly about 7 inches in diameter and about 18 inches deep. The entrance passage departed from the usual pattern of extending in one of the more sheltered directions and was in the northeast. Although only three posts of the passage walls could be detected, the mixed soil indicated a length of 9.5 feet. All four sub-floor cache-pits were relatively small, and all were excavated near the side walls. Only one, Cache 3, was bell-shaped; it measured 22 inches across the top, 28 inches across the bottom and was 12 inches deep. The remainder had vertical sides. Cache 1 had a diameter of 22 inches and was 7 inches deep, Cache 4 was 50 inches across and 37 inches deep, while Cache 2, merely a pocket between two of the outer posts, was 12 inches across and 10 inches deep. None showed any evidence of special preparation of floor or walls, but the soil in the top of Cache 4 had been subjected to considerable heat.

Charcoal and burned earth were comparatively rare in this house, from which we may infer that its destruction resulted not from fire, but from the more gradual process of decay. The fact that the material in the pits was apparently refuse and that only fragmentary material occurred on the floor suggests that the house was abandoned in a leisurely manner.

Pottery

Although artifacts of stone, shell and bone were rather rare in this house and more perishable objects were absent, fragmentary pottery was relatively abundant. It is represented in our collection by four restored vessels, 135 rim sherds, and 2397 body sherds. The typical pottery, as revealed by the larger fragments, consists of gravel tempered globular pots of medium size with constricted necks, simple, direct, moderately flaring rims, and fairly common handles. Decoration, when present, is extremely simple. While variation is not lacking, it is usually confined to qualities other than these.

A variety of tempering material was employed in the manufacture of this pottery, but most types occur rarely. Sand or gravel is an almost constant feature, but crushed rock, shell, and pottery sherds are sometimes found in conjunction with it. Ap-

proximately 96% of all sherds are tempered exclusively with stone, mainly gravel; in very slightly less than 4%, shell is found with gravel; pottery sherds are noted in less than a half dozen otherwise gravel-tempered fragments; and three sherds contain shell alone. Both the amount and coarseness of the tempering material varies widely. Discernible tempering material is occasionally almost absent, while on the other hand it sometimes comprises a large proportion of the paste; in general the gravel is moderately abundant. The range in size of the tempering fragments is very marked, varying from minute sand grains to pebbles as much as 7 mm. (9/32 inch) in diameter, which outcrop on both surfaces of the vessel. The extremes in size frequently appear in a single specimen. As a rule, however, the sand or gravel is of medium size. The paste is on the whole rather fine and compact, with a slight tendency toward a flaky structure, but, especially where coarse gravel is abundantly present, crumbly sherds are not lacking. The variation in hardness is limited; no specimens softer than 2 or harder than 3 were noted, and the large majority are very slightly softer than 3 (calcite).

A considerable lack of uniformity in the firing and probably in the clay used is indicated by the unusually great variation in color. The surfaces are various shades of gray or brown or occasionally bright brick-red, with a predominance of medium gray and grayish-brown colors. The paste between surfaces is brown, red, or light gray to black, and frequently two colors appear in the cross-section of a single sherd. Even in instances in which the paste is gray throughout, the effect of more intense heat outside the vessel is evident in a lighter color near the exterior surface. Where both gray and brown or red appear together the relative proportion of each varies widely. The surfaces, especially those of the vessel exteriors, have commonly been blackened by smoke, seemingly by use near fire for varying lengths of time. The interior surfaces of a number of specimens contain a heavy deposit of carbonized organic material, which is occasionally as much as 2 mm. (3/32 inch) in thickness.

The application of a cord-wrapped paddle to the exterior surface of vessels was a common technique, for slightly more than 50% of the sherds still bear the vestiges of cord impressions. A considerably larger proportion may originally have been so treated, for subsequent smoothing often nearly obliterated the evidence over large areas of the pot, and many of the sherds tabulated were very small. The manner of application is notably lacking in uniformity. The cord used ranged from very fine to very heavy, and it was lightly to deeply impressed. Occasionally the impressions are uniformly parallel and vertical, but

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PLATE IX

1. Restored pot from House 1, Champe site; height, about 215 mm. (8½ inches); greatest diameter, 240 mm. (9½ inches).
2. Restored pot from House 1, Champe site; height 228 mm. (9 inches); greatest diameter, 244 mm. (9⅝ inches).

more often no attempt has been made at uniformity and the impressions lie in all directions. Although in a few instances the surfaces appear not to have been touched subsequent to the application of the paddle, the major proportion have been smoothed to some extent, and usually this smoothing has been rather thorough. While an actual polish was never achieved, the surface in many cases is very well smoothed. The use of an instrument, in some cases, for the final manipulation before firing is indicated by the presence of striations on some of the more carelessly finished specimens. The vessel interiors, while sometimes finished with care, are frequently very rough, and the irregularities indicate that sometimes an implement was used and at other times the final shaping was done with the fingers alone. The nature of the interiors of the cruder pots strongly suggests that the ceramic forms here were molded rather than coiled. The presence of what appears to be a grayish brown slip was noted on a very limited number of sherds. This stratum exhibits a tendency to scale off, and where this has occurred the tempering material outcrops on the underlying surface.

With very rare exceptions the ceramic remains here represent globular pot-shaped containers, which seem invariably to possess rounded bottoms and indistinct shoulders. If the restored specimens are typical, the greatest diameter occurs rather high on the vessel and a rounded shoulder area rises to the constricted neck. The rim is usually moderately flaring, although there is a certain amount of variation in this respect, and while the range in height is from 7 to 40 mm. (9/32 to 1 19/32 inches), few specimens fall near the extremes and a large proportion do not differ greatly from the mean height of 18 mm. (23/32 inch). Of the 135 specimens, direct unmodified rims constitute approximately 93%, while collared rims are represented by about 3.5% and bowls occur with the same frequency. The rim profiles are identical to those from the Schrader site, which are illustrated in Figure 4. The modified rims from this house are from relatively small vessels and are characterized by unusually narrow collars. The bowls are straight-sided or have slightly contracting upper walls (Plate XI a, b); the one restorable specimen is of the latter type. These bowl fragments are all grit-tempered and in some cases are cord-paddled; they differ from the other pottery in no respect other than form. One fragment in the collection probably represents a portion of the neck of a bottle-shaped vessel (Plate XI, c).

Loop handles, which appear to have been paired on the vessels, number twenty-two, while only two horizontal lugs occur. The loop handles, which vary from elliptical to strap-like in cross-section, are attached to the lip and to the body immediately be-

low the neck. The lugs, one of which is vertically perforated, seem to have been attached to the rim immediately below the lip.

Decoration is a minor feature of the pottery under consideration. With the exception of a very few sherds, it is confined entirely to the rim, and is present on only 24% of the specimens. Collared rims are undecorated except for a series of notches encircling the vessel on the lower margin of the collar, but this treatment is constant. Decoration on the direct, unmodified rims consists chiefly of a scalloping of the rim exterior immediately adjacent to the lip, an effect achieved usually by notching with the nail and sometimes shaping the resultant nodules between the fingers. While on the undecorated rims the lip is rounded or narrowed and rounded, it is frequently slightly thickened for the application of this type of decoration. Other techniques, appearing only rarely, consist of incised or impressed lines or punctations on the lip. A total of thirteen body sherds, belonging to a maximum of six vessels, bear incised designs (Plate XI, d, e). They are too fragmentary to reveal much information concerning the area of the pot decorated and the designs, but incised rectilinear designs, usually diagonal, are indicated. These sherds are invariably grit-tempered, are sometimes cord-marked, and appear to be atypical in no respect other than the decoration of the body. The depth and width of the incisions vary, but crudity of execution is a constant feature.

Pipes were represented by only two fragments, both of them composed of pottery clay and of the same curved tubular type. The more nearly complete specimen, which includes the bowl, contracts slightly and then flares slightly to the rounded lip (Plate XII, x). The exterior diameter at the orifice of the bowl is 23 mm. (29/32 inch), while the bowl interior is 15 mm. (19/32 inch) in diameter and 15 mm. (19/32 inch) deep. The other fragment, which is 22 mm. (7/8 inch) in diameter, includes none of the bowl, but is obviously part of a similar specimen. In both pipes the perforations, rectangular in the more nearly complete fragment and round in the other, lie very close to the inside curve of the stem.

Work in Stone

Chipped stone artifacts, with the exception of rather numerous rough flakes retouched on one or more edges, are rare in the collection from this house. The types are few, and each type is represented by very few examples.

The sole contribution to our knowledge of the missile weapons of the Champe site inhabitants consists of one unnotched triangular point 35 mm. (1 3/8 inches) long and 20 mm. (13/16 inch) across the straight base. While all the edges have been retouched,

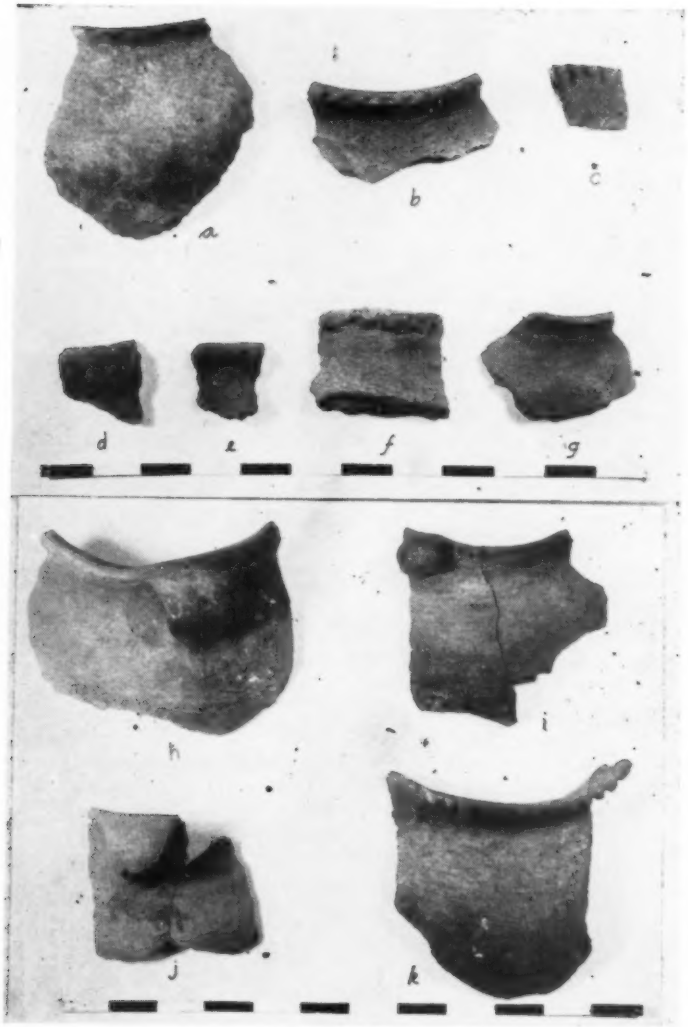

PLATE X

Rimsherds and handles from House 1, Champe site.

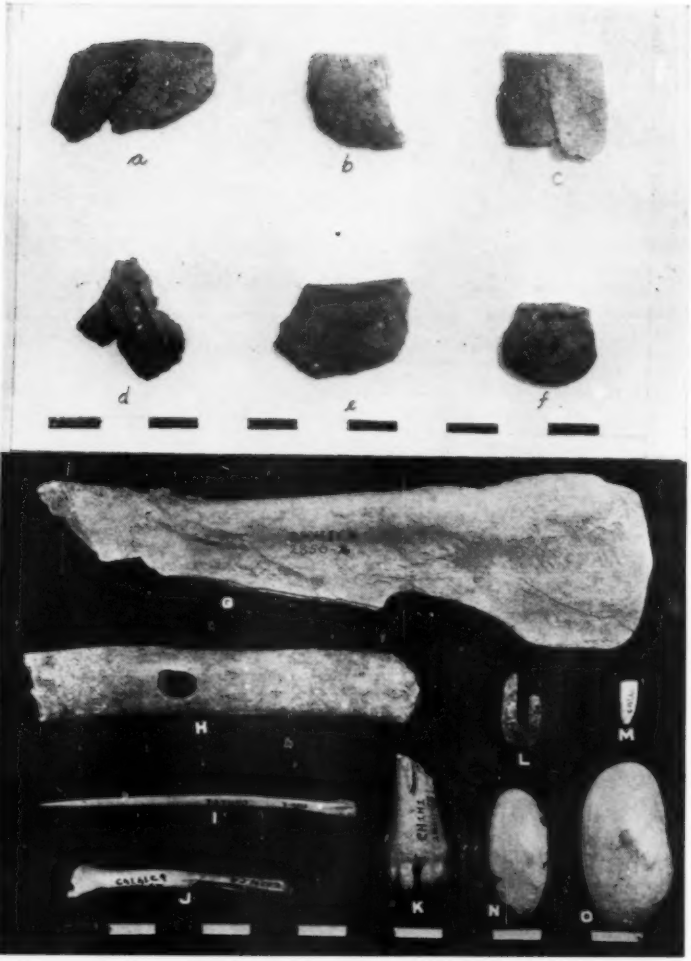

PLATE XI

Pottery, bone and shell artifacts from House 1, Champe site. a, b, bowl fragments; c, fragment of bottle; d, e, incised body sherds; f, perforated lug; g, bison scapula knife; h, shaft straightener; i, awl; j, k, cut bone; l, fishhook; m, cut shell fragment; n, shell pendant; o, shell scraper or spoon.

vestiges of the original flake surface remain on one face. The three end scrapers found are rather carelessly worked, except for the cutting edge. All are roughly triangular, with a keel formed by the removal of relatively large flakes; the two complete specimens are 40 mm. (1 9/16 inches) in length, and the broken one probably was similar in size. Two four-edged beveled knives are both roughly diamond-shaped. These also were shaped with a minimum of chipping, but the coarse chipping was well controlled to create a very satisfactory implement. They are both made from a brown flint, and both have been broken. Keeled side scrapers are represented by two specimens, both of which are fragmentary. In each instance the dorsal surface has been well shaped and all edges are retouched. Of the five leaf-shaped knives or scrapers, three are pointed at both ends and two have straight bases. They range in length from 66 mm. to 128 mm. (2 5/8 to 5 1/16 inches) and in width from 23 mm. to 36 mm. (29/32 to 1 7/16 inches). In every case all faces and edges have been worked. Only two other forms of chipped stone occur. A well-worked scraper in the form of an isosceles triangle with rounded corners has sides 40 and 32 mm. (1 9/16 and 1 1/4 inches) long, and a roughly lunate specimen (Plate XII, m) with dimensions of 52 mm. and 37 mm. (2 1/16 and 1 15/32 inches) has been worked on but one face and the edges; the other face consists of the original flake surface.

Objects of ground stone are equally limited in range of forms and numbers of specimens occurring. A single fragment belonged to a pecked celt which was oval in cross-section and was ground to a fairly high polish, particularly in the region of the bit. Dakota sandstone was commonly used for abrading purposes. While only three specimens possess grooves, twelve irregular fragments have surfaces worn flat, slightly concave or convex, probably as the result of use in burnishing or grinding. Of the grooved specimens only one still retains evidence of its use in smoothing arrow shafts; it possesses four much worn grooves. The two others, of the usual boat shape, have irregular grooves possibly formed by the sharpening of pointed objects, but are probably re-used shaft smoothers. A slab of fine-grained sandstone with three square sides has a shallow groove on one face and is slightly concave on the other (Plate XII, u); both features are obviously the results of abrading. Water-worn pebbles with battered ends suggestive of use as pecking stones are rather numerous, and three have been further modified to give them flattened and slightly pitted surfaces. Vestiges of powdered hematite remain in two of these shallow depressions. Several fragments of hematite were recovered which are grooved as though material had been removed for paint, and another piece with a worn surface appears to have been used

in smoothing, while the use of a thin, well-polished tablet with parallel sides and rounded ends is problematical (Plate XII, v).

Work in Bone

Extensive utilization of bone for implements is not indicated by the material recovered from this house, for very few artifacts of this material are included. That this scarcity is the result of disintegration is improbable in view of the similar lack of stone objects and the relatively sound condition of what bone was recovered. It is not justifiable, however, to assume on the basis of the excavation of a single house that the artifacts recovered represent an accurate list even of the imperishable materials employed, for any number of factors might explain their absence after the abandonment of the dwelling.

The single awl is made from a split metapodial bone, a portion of the proximal joint of which forms the butt. This implement, which is 170 mm. (6¾ inches) long, is square in cross-section but has a slender sharp point. A shaft straightener made from a bison rib has a single well-worn perforation with a diameter of 15 mm. (19/32 inch), and a long bone which includes the distal joint is broken at a similar perforation. No complete scapula hoes were encountered, but several fragments point to their use. A broken joint, although rather badly battered, appears to be beveled on the glenoid border, and four fragments which have most recently been used as scrapers or knives exhibit worn notches on the scapula margins. Both these features are characteristic of certain of the hoes found in this region, and it is probable that the last four fragments were parts of broken hoes sharpened and re-used for other purposes, for no other explanation is apparent for the presence of the notches. A cleaver-shaped knife, made by cutting a scapula longitudinally between the processes, is sharpened on the end and one edge (Plate XI, g). A large shallow notch on the cutting edge was probably the result of breakage, but the edges of it have been re-sharpened. A somewhat similar specimen, but with a smooth and rounded rather than a sharpened edge, is indicated by a broken piece. Four small fragments of scapula whose original form cannot be determined, have polished edges and were presumably used as knives or scrapers. The one remaining recognizable artifact is a fish hook in the process of manufacture. Its intended final form is uncertain, but it is a nearly flat section of some large bone. The purpose of two other worked bone objects is problematical. A triangular section of a long bone has been cut but not polished on all edges, and is otherwise unmodified except that the cancellous bone has been largely removed. It is 41 mm. (1⅝ inches) long and 13 mm. (½ inch) in greatest width. A fragment of scapular

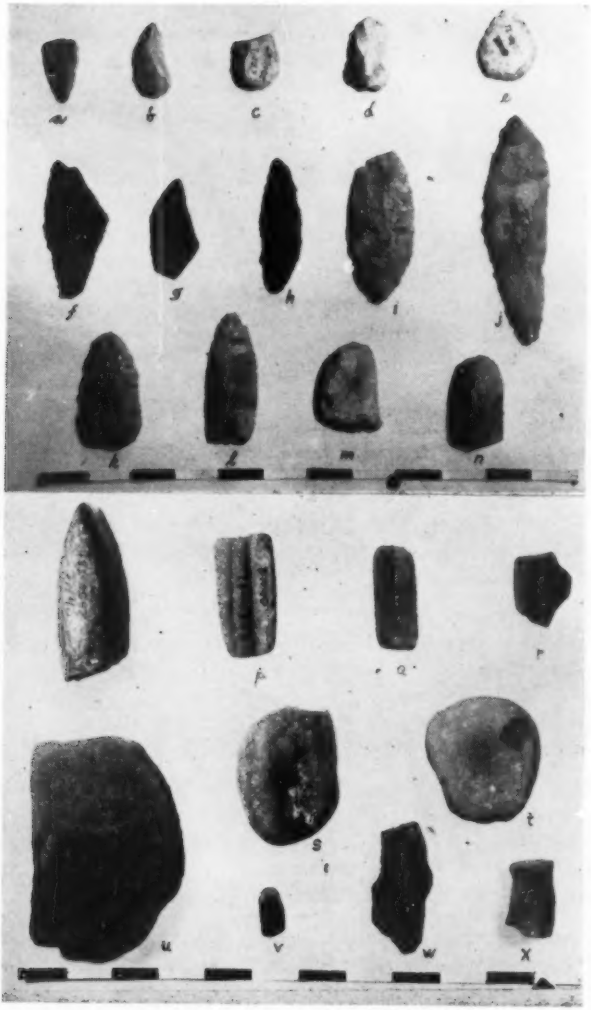

PLATE XII

Stone and pottery artifacts from House 1, Champe site. a-n, chipped flint artifacts; o, ground celt; p-r, u, Dakota sandstone abraders; s, t, hammerstones; v, hematite tablet; w, hematite fragment; x, pottery pipe.

process, broken at one end, has been cut to give it straight sides and a straight end, and one face has been worked down so that but a small amount of cancellous bone remains. A few bone fragments evidently represent the raw material from which implements were made. These consist of the distal joints of metapodial bones exhibiting the marks made in cutting the bone both transversely and longitudinally, and a large bird bone with a section cut from it.

Work in Shell

River mussel shells occurred in large quantities on the floor of House 1 but in general they are unworked. Three specimens only show any evidence of man's activities other than the gathering and opening of them. These are a small broken piece which has been cut (Plate XI, m), a complete shell with a worn edge and a worn area near the hinge which propably served as a scraper, and a pendant. This latter specimen is a small bivalve shell with two perforations, 4 mm. (5/32 inch) and 5 mm. (3/16 inch) in diameter, bored near the hinge 20 mm. (13/16 inch) apart (Plate XI, n). Aside from some polishing on the exterior surface, it is otherwise unmodified. While the remainder of the shells were unworked, the fact that many of them were carefully piled together near the wall of the house suggests that they may have been intended as raw material for artifacts or were used unmodified as spoons or some similar implement.

SUMMARY AND CONCLUSIONS

Despite the relative paucity of certain phases of the artifact complex, the data recovered in the Champe site excavation present a fairly clear picture of the cultural relationships involved. The remains other than pottery are of little assistance in the classification of this manifestation, for they are equally characteristic of at least two of the major cultural divisions of the region. Objects of stone and bone from Nebraska Culture and Upper Republican Culture sites are on the whole not radically different, and few such artifacts have diagnostic value. The situation here is even less satisfactory than usual in this respect, for, perhaps owing to the very small number of specimens, traits peculiar to either of these cultures are lacking. The ceramic complex, however, is rather well represented and its relationships seem clear. It is apparently identical in all respects to that encountered at the Saunders site, as described by Strong,[2] and corresponds to that of the more homogeneous of the sites which have been assigned to the Nebraska aspect. It is distinctly set apart from Upper Republican pottery by its almost complete lack of collared rims, smaller

[2]1935, pp. 170-173.

proportion of cord-paddling and more frequent subsequent smoothing, less frequent occurrence of lip decoration, presence of handles and lugs, and brown color. The pipes found constitute supporting evidence, for in components of the Nebraska aspect they are predominantly of pottery, while stone pipes are more common in Upper Republican sites. While the characteristics of the house determinable by excavations are equally typical of either aspect, the fact that exterior cache-pits were not observed may be significant, for these are present in Upper Republican villages.

It would seem to be premature, in view of the rather general descriptions of previously excavated Nebraska aspect sites thus far available, to attempt a closer correlation with specific components.[3] It is certainly true that detailed trait-for-trait comparisons cannot be made at this time. Moreover, the determination of closer relationships will require a larger series of data from this site. At the present time it must suffice to point out the fact that this component conforms in all respects to the Nebraska aspect and to indicate that the apparently exotic elements found in certain other components are almost absent here.

Concerning the life of the people who left these traces of occupation little can be said further than that they obviously conformed to the general pattern of existence of the more or less sedentary groups of this marginal plains area. Although no vegetal remains had survived in this house, some sort of crops were certainly grown, and probably constituted an important element in the diet. The presence of fish bones and numerous mussel shells is evidence that the streams were intensively exploited, and small mammals, both rodents and carnivores, were hunted for their flesh, but the bones of the black tailed deer are most abundant.[4] Although the bones of bison are remarkably rare, it is difficult to believe that this abundant source of food was not utilized. This scarcity of bison remains is characteristic of most of the prehistoric villages thus far investigated, and it probably points, not to neglect of this resource, but to the practice of removing the edible portions of the kill for transportation to camp. Judging from the large number of houses widely scattered over the bluffs and the apparent lack of fortification, the occupation here was peaceful and probably of considerable duration.

The identity of the people who occupied this village and the time of their occupancy are problems whose solution is not yet possible. That at least the portion of the site excavated was aban-

[3]A paper by E. H. Bell describing several Nebraska Culture sites is soon to be published by the University of Nebraska.

[4]Identifications by T. M. Stout, Nebraska State Museum, University of Nebraska, Lincoln.

doned prior to contact with Europeans seems unquestionable, for articles of white manufacture are completely absent, but by how many years or centuries it antedated the historic period is a question the answer to which cannot be attempted on the basis of our present knowledge. It can only be suggested that there probably is no question of an extremely late prehistoric date. The site is presumably contemporaneous with other Nebraska Culture sites, for which there is in turn evidence of contemporaneity with Upper Republican manifestations,[5] and no component of either of these aspects has yielded any evidence of contact with Europeans. Even less can be said concerning the authorship of this pattern. Strong has suggested the possibility that an earlier Siouan occupation may have been responsible for it, and pointed out the necessity of delineating the culture traits of the protohistoric and historic Siouan tribes as an aid in clarifying the problem.[6] Up to the present time, however, this problem has been neglected. The possibility that this knowledge might illuminate many puzzling questions concerning the prehistory of the region makes it important that documented Siouan sites be located and excavated before the evidence is entirely destroyed.

LIST OF TRAITS

Pottery

1. Grit or gravel tempering alone—96.1%. Gravel tempering predominates.
2. Wide variation in size of tempering, but in general it is medium.
3. Tempering material usually fairly abundant.
4. Shell occurs in 3.9%, usually with gravel also present.
5. Potsherd fragments occur very rarely.
6. Hardness between 2 and 3. A large proportion falls at or near 3. No difference correlated with tempering material.
7. Paste usually rather fine and compact with a tendency to flakiness; a small proportion with coarse abundant temper tend toward a crumbly structure.
8. Exterior surface color gray, buff, or orange-red, but gray and brownish-buff most common.
9. Interior surface usually gray.
10. Color of material between surfaces varies widely.
11. Surface of 50% of sherds roughened with cord-wrapped paddle, remainder smooth.
12. Paddle marks usually more or less obliterated by subsequent smoothing.

[5]Cf. Wedel, 1935, p. 207.
[6]Strong, 1935, pp. 274-275.

13. Both interior and exterior surfaces commonly roughly finished, either with tool or hand.
14. Mouth and horizontal section of body invariably round.
15. Constricted neck.
16. Shoulder rounded.
17. Base rounded.
18. Simple straight or flaring rim (Form A)—92.5+%.
19. Form A: Rims usually curving, and of variable height; very high rims lacking.
20. Form A: Lip usually rounded and often narrowed, with some thickening frequent when decoration is present.
21. Form A: Decoration on this type of rim—24.2%.
22. Form A: Scalloping of the juncture of lip and rim exterior, usually with fingers and nail, most common.
23. Form A: Notched lip, diagonally or transversely incised lip, and punctations or parallel diagonal incisions on rim exterior adjacent to lip, rare.
24. Modified collared type of rim (Form B)—3.7+%.
25. Form B: Rims undecorated except for scalloping at lower margin of collar, which is always present.
26. Bowls with straight or slightly contracting rims—3.7+%.
27. Loop handles fairly numerous, probably 2 on a vessel. On Form A rims only.
28. Handles most commonly strap-like and attached to lip and shoulder area below the neck.
29. Lugs, perforated or unperforated, rare. On Form A rims only.
30. Incised body decoration extremely rare.
31. Slip (?) rare.
32. Thickness of walls varies from very thin to very thick, but 4-8 mm. most common.
33. Curved tubular pipes.
34. Pot exterior frequently smoke-blackened, and interiors covered with carbonized material.

Work in Stone

1. Triangular unnotched arrowpoint—NBa.
2. Diamond-shaped beveled knives.
3. Leaf-shaped knives, pointed at both ends.
4. Leaf-shaped knives, pointed at one end, straight base.
5. End scrapers, keeled, roughly triangular, medium size.
6. Side scrapers of keeled type.
7. Triangular scraper with rounded corners.
8. Roughly lunate scraper.
9. Knives and scrapers of irregular flakes, retouched on one or more edges.
10. Ground celt, oval cross-section.

11. Grooved sandstone abraders, some probably originally arrow-shaft smoothers.
12. Ungrooved sandstone abraders with plane or slightly concave or convex surfaces, irregular shapes.
13. Pitted hammerstones.
14. Pebble hammerstones.
15. Hematite used for paint.

Work in Bone

1. Awl of split metapodial.
2. Shaft straighteners of long bone and rib.
3. Scapula hoes.
4. Scapula hoes—inferior articulation present, and glenoid border beveled.
5. Scapula hoes—notched edges.
6. Scapula hoes—spines removed.
7. Scapula knives and scrapers abundant.
8. Scapula knife of cleaver shape.
9. Knives and scrapers made from broken hoes.
10. Fish hook blank, flat in cross-section.
11. Cut sections of bone, use unknown.

Work in Shell

1. Worked shell rare.
2. Double-perforated pendant.
3. Cut section.
4. Shell scraper (?).

House

1. Semi-subterranean.
2. Square with rounded corners.
3. Outer posts placed just within vertical walls of pit.
4. Four pairs of central roof supports.
5. Central fireplace.
6. Cylindrical cache-pits, situated near walls.
7. Entrance passage.

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FREMONT 1
Prehistoric Village Site in Sarpy County, Nebraska

By A. T. Hill and Paul Cooper

INTRODUCTION

Surface indications of house sites are scattered along the line of bluffs bordering the Elkhorn River for a distance of nearly a mile below the Champe house. Either this place supported a large population or habitation here had extended over a considerable period of time; the loose arrangement of houses and the apparent lack of fortifications point to a peaceful and possibly rather prolonged occupation. The investigation of the Champe house, described in the preceding paper, was followed by thorough excavation of two houses sites at the extreme southern limits of this group. This portion of the site, although not set off in any way from the remainder, was given the designation Fremont 1. The two houses excavated by the Survey stood on a point of the bluffs a short distance south of the Douglas County line.

Despite the possibility that these houses were inhabited contemporaneously with the occupation of the Champe house and the suspicion engendered by a preliminary study that the same complex was represented in all the lodges, considerations of time and convenience dictated separate analyses of the Champe and Fremont 1 data. The results have confirmed the hypothesis that the previously described Champe house and the two Fremont 1 houses represent units of a single component. The houses and the artifacts which were present in all the excavation units are practically identical; the differences consist only in the presence or absence of traits from the various units, a situation easily explained as owing to inadequate sampling. Thus, the combined series of traits from all the houses presents a more complete picture of the complex represented.

House 1

Neither of the two pits excavated here was apparent on the surface; both were located by means of test trenches carried just beneath the plow line, at which depth the lines of demarcation between the undisturbed soil and the fill within the pits were clearly visible. After removal of the soil which had been disturbed by cultivation, House 1 appeared as an oval pit filled with black soil, but complete excavation proved that this condition was caused by the slumping of the pit walls. At the floor level, 42 inches beneath the present surface, the house was roughly square, but with unusually rounded corners. The pit measured 20 feet from north to south and 18.5 feet from east to west. Immediately within

its walls thirty-three post moulds were spaced at intervals of from 1 to 3 feet. Seventeen posts, from 6 to 18 inches apart, were placed along each wall of the entrance passage, which was 3 feet wide and extended to the west the exceptional distance of 17 feet. The moulds of four roof support posts occurred from 5 feet 3 inches to 6 feet from the center of the house and toward the four corners, forming a quadrangle slightly less than 8 feet square. In the center of the floor a shallow oval depression, containing a small amount of ash and underlain by burned clay constituted the fireplace, which measured 36 by 40 inches. The floor of the house proper had received no special treatment such as puddling or firing, but the floor of the entrance passage, which sloped rather steeply for the first 5 feet and then more gradually to the surface, had been subjected to fairly intense firing for a distance of about 10 feet from the outer end. That this firing occurred prior to the setting of the entrance posts is indicated by the absence of charcoal and the fact that the walls of the passage also had been burned. The entrance floor was likewise somewhat unusual in that it was concave rather than level in cross-section throughout most of its length.

Three cache-pits had been excavated beneath the floor, all of them near the house walls. In no case was there evidence that the floor or walls had been prepared in any way, and if any lining material was employed, all traces had subsequently disappeared. Cache 1, near the northwest corner, was cistern-shaped with diameters of 35 inches at the top and 50 inches at the bottom and with a depth of 62 inches. The walls of Cache 2, in the east side of the house, expanded slightly from a top 40 inches in diameter to a floor 45 inches across and 35 inches deep, and into them had been excavated two small pocket caches, in which were found a ground celt, three chipped celts, and a flint knife. Cache 3, with vertical walls 33 inches deep, had a diameter of 34 inches. Four small shallow holes found at various points in the floor may have served as small caches or receptacles for the bases of pots, or may have had any of a number of functions.

Refuse-laden soil filled the pits and lay on the house floor to an average depth of about 10 inches. Throughout this soil were scattered fragmentary pottery, stone, bone, and shell, as well as occasional intact artifacts. Above this zone the fill was a dark soil containing very little cultural material, and was probably composed mainly of fallen roof material. Charred wood and other evidences of burning were uniformly absent in this house, and burned clay was lacking, except for a few fragments bearing grass impressions which were mixed with the refuse in one of the cache pits.

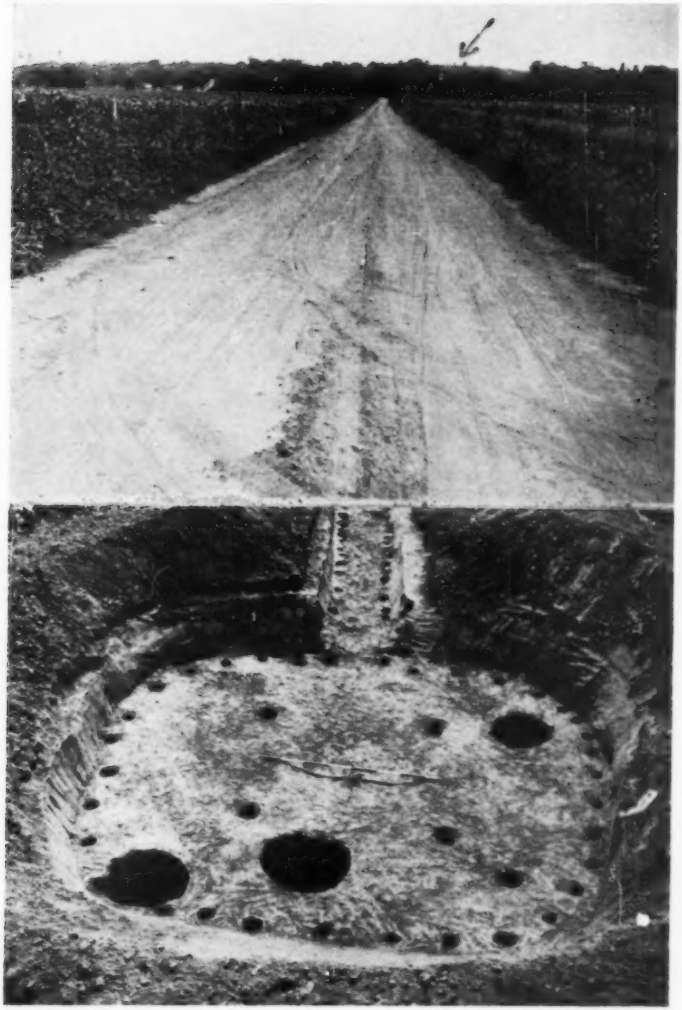

PLATE XIII

1. View of the bluffs on the east side of the Elkhorn River. Fremont 1 on the bluffs in the right center background (arrow).
2. House 1, Fremont site; entrance to the west.

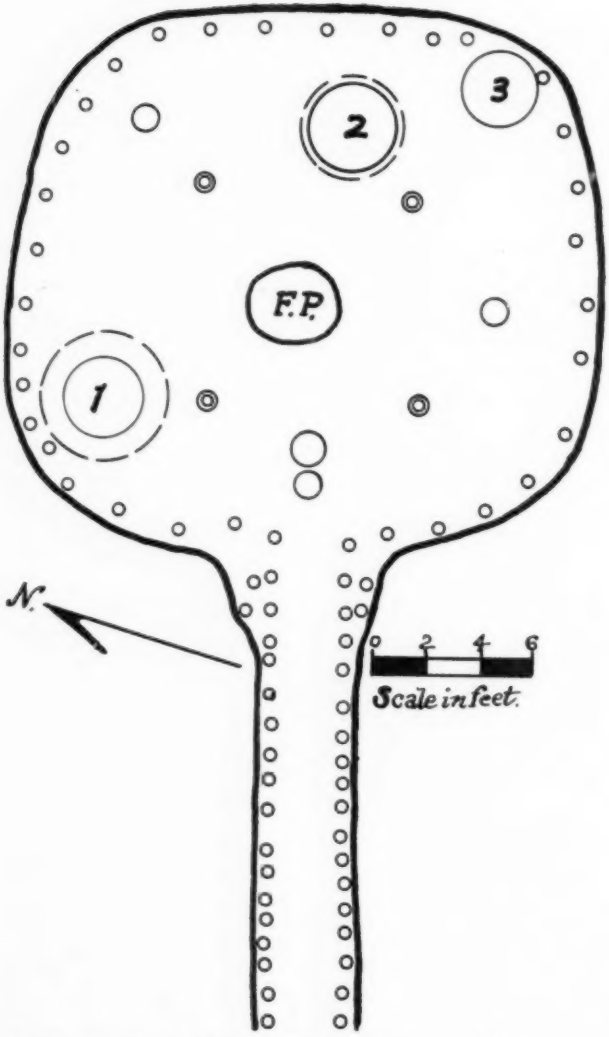

Figure 6. Ground Plan of House 1, Fremont 1 Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1-3, cache-pits; F. P., fireplace.

During the excavation of this house pit, a few fragmentary human bones, evidently representing a disturbed burial, were encountered at a depth of approximately 20 inches. Although the outlines of a burial pit were not noted, the bones had been interred subsequent to the filling of the house pit, for they lay partially within it and partially in the otherwise undisturbed soil outside the house walls. The conditions of interment were not ascertainable, and no cultural material was found associated.

House 2

House 2, 290 feet south of House 1, was constructed in a pit whose floor was 32 inches beneath the present surface. It was quadrangular in form with rounding corners, with the back wall slightly longer than the others. From north to south the pit measured 13.5 feet, while the east to west dimensions were 15 feet for the back wall and 13 feet for the front wall. A number of the post moulds in the walls of the house proper were located with difficulty, while an uncertain number were not discernible, but the positions of the posts in the entrance passage, which was about 30 inches wide and extended 17 feet to the south, were rather readily determined. There were thirteen along the east wall and fourteen along the west wall, spaced at intervals of from 6 to 18 inches. Only sixteen posts could definitely be located in the walls of the house itself, but the original number must have been considerably greater. The four center posts were so placed as to form an asymmetrical quadrangle with sides varying in length from 4.5 to 6.5 feet. The two posts nearest the back of the house stood 3 feet from the center of the house, those at the front were 4.5 feet from the same point. The fireplace, a circular depression 32 inches in diameter and 4 inches deep, lay in the center of the house. It was filled with ashes and the underlying soil was burned hard and red to a depth of 4.5 inches. A bell-shaped cache, 52 inches deep, 30 inches across the top and 42 inches across the bottom, was excavated near the east wall. Its sides and floor showed no evidence of special treatment or lining material. Otherwise the only sub-floor excavations were two small straight-sided pits, one near Cache 1 and the other in the northwest corner, whose purpose is not known. They contained soil of the same sort as that lying above the floor, and may have served as storage places.

That the lodge which stood here was burned is clearly indicated by the evidence. The charred remnants of posts occurred in most of the moulds found, while charred beams, smaller fragments of charcoal, and burned clay were abundant in the fill above the floor. Burned fragments of clay bearing grass and twig impressions were especially numerous. Although this latter material is often found in houses which seemingly have not been burned,

it usually occurs less profusely under those circumstances and probably represents only the plaster which was in close proximity to the smoke hole.

The refuse filling the cache-pit and lying on the house floor was, in general, of the usual sort, consisting of fragments of pottery, stone, bone, and shell, and a few complete artifacts, but an additional element was present. On the floor and in the single cache-pit occurred larger numbers of human bones, almost invariably broken and often burned. Bones from all parts of the body and from both sexes and various ages were found thoughout the soil, mingled with the animal bone and other refuse. Cranial parts, although occasionally comprising a major portion of the skull cap, were usually broken into small fragments, and long bones were represented by segments or small split pieces. That the burned and broken condition of the bones cannot, at least in totality, be attributed to the burning and falling of the house is demonstrated by the fact that many of them in this condition occurred well down in the ashy soil of the cache-pit, which had obviously been filled prior to that burning. While many of the bones are charred, others appear to have been modified by intense heat but not direct contact with flame, and still others have not been affected in any way by fire.

Instances of the occurrence of human bones in houses assigned to the Nebraska Culture have been noted by other investigators. Strong[1] asserts that Gilder and Sterns found them cracked and scorched in one of six houses explored in Sarpy County, while Gilder[2] reports encountering this phenomenon in two of seven houses in this same locality, one of which is presumably the one mentioned by Strong. The bones are reported to have been split in the same manner as are those of animal bones found in the usual house refuse and to have occurred both on the house floor and in the cache-pits. Save for the presence of human remains and the alleged elliptical shape of at least one of them, these houses evidently resembled others of the Nebraska Culture. Strong[3] encountered a similar situation in his investigation of a house at the Saunders site, which was referred to in the preceding paper, and suggests that a more reasonable explanation than that of cannibalism is that bodies were stored there before their interment. The writers, however, feel that the present evidence favors the hypothesis that human flesh was eaten by inhabitants of this village, for in no other manner can they account for the mixture of extremely fragmentary human bones with the ordinary refuse

[1] 1935, p. 265.
[2] 1926, p. 24.
[3] 1935, pp. 193-174.

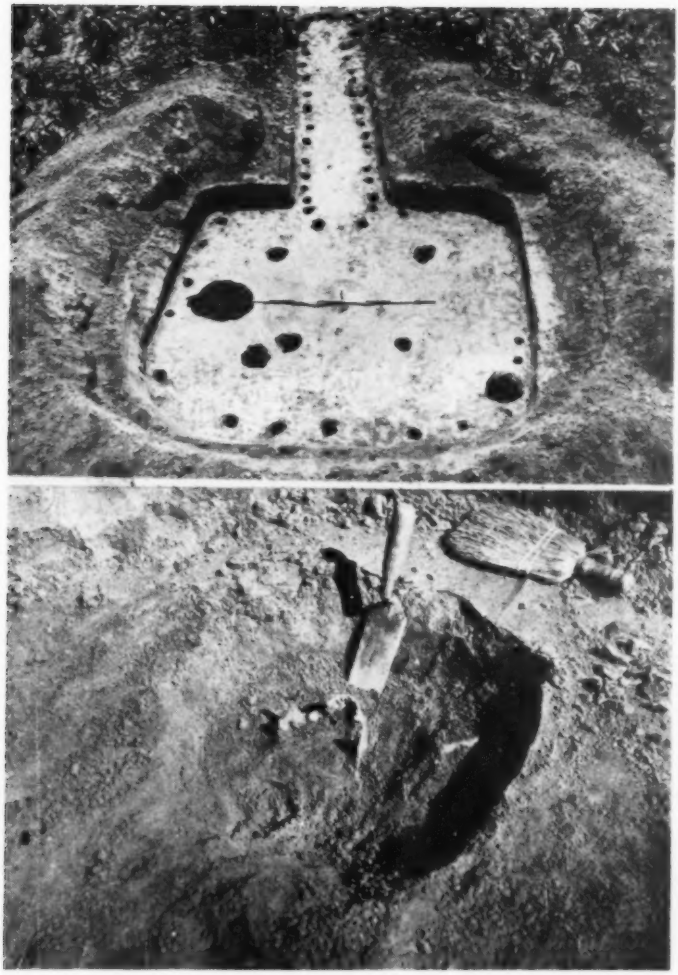

PLATE XIV

1. House 2, Fremont 1 site; entrance to the south.
2. Human mandible in situ on the floor of House 2, Fremont 1 site.

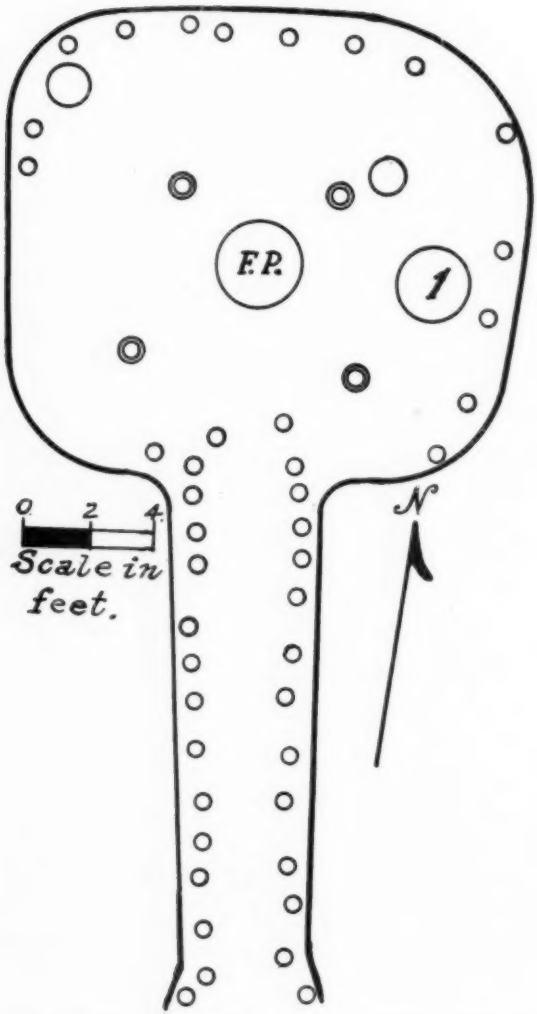

Figure 7. Ground Plan of House 2, Fremont 1 Site. ———, edge of house-pit; o, outer post moulds; double circles, center post moulds; 1, cache-pit; F. P., fireplace.

of habitation in the ashy fill of the cache-pit. Such breakage as that executed on the long bones could not have been other than intentional, and it seems hardly reasonable that, if the intention were later to gather them up for burial, so much effort should have been expended in crushing them into minute fragments. Furthermore, occasional fragments seem too large to have been overlooked during a process of transporting the remains to the hilltops for final disposal. The view that cremation is indicated is hardly tenable in view of the various conditions, including the fact that in no instance was the bone greatly reduced by fire. That human flesh was not an item of the every-day diet is evidenced by the absence of human bones from some and probably the majority of houses of this culture. It would seem that only in certain lodges were carried on the activities which produced this peculiar type of debris; yet that certain houses were exclusively devoted to this type of activity is refuted by the apparently consistent presence also of ordinary occupational refuse. Still further excavation in this area is desirable to determine whether House 2 is representative of the sites in which human remains occur, and the proportion of houses in which these conditions exist. Information on these points will give a firmer basis for interpretation.

Pottery

The pottery recovered from these two houses, consisting of two restored vessels, 104 rim sherds, and 1472 body sherds, is identical with that described for the Champe site house with only such exceptions as would be expected in two parts of a single occupation site. The typical form, judging from those sherds sufficiently large to be indicative, is represented by one of the restored vessels, which is globular with a constricted neck and a rim which flares moderately to a relatively wide mouth. This pot is 200 mm. (7⅞ inches) high, its greatest diameter is 210 mm. (8¼ inches) and its rather irregular mouth averages about 125 mm. (4⅞ inches) across; the average size of the vessels used here probably differed little from these dimensions, and large specimens appear to have been lacking. In all qualities of the paste this ware is indistinguishable from that of the Champe house. The texture is in general fine, compact, and somewhat flaky, although in sherds with an usually large amount of tempering material it tends to be granular. Sand or gravel is almost invariably present, and varies in size from very minute grains to pebbles with diameters as great as the thickness of the sherd. A medium size, used rather abundantly, is most common, however. Crushed shell occurs in slightly less than 3% of the sherds, crushed granite is fairly common, crushed limestone fragments are present in thirty-one sherds, and small potsherd fragments have been noted in two

PLATE XV

1. Restored pot from House 2, Fremont 1 site; height, about 172 mm. (6¾ inches); greatest diameter, 172 mm. (6¾ inches).

2. Restored pot from House 2, Fremont 1 site; height, 200 mm. (7⅞ inches); greatest diameter, 210 mm. (8¼ inches).

specimens, but in almost every instance gravel was also employed. The surface hardness is uniformly slightly softer than 3 (calcite). The surface and interior colors exhibit the same range as do those of the Champe site ceramics. Similarly, the range in thickness of sherds is identical and the interior surfaces of vessels frequently are thickly coated with layers of carbonized material of some sort, apparently as the result of repeated use in cooking. Evidence of the use of a cord-wrapped paddle remains on the exterior surface of 46% of the sherds, and indicates considerable variation in the size of cords employed, the manner of application, and the extent of subsequent smoothing.

An unthickened flaring rim is the characteristic type here, comprising 88% of all the rim sherds in the collection, but collared rims are not totally lacking, although they are present on only ten specimens. All sherds of the latter type are decorated only by scalloping of the lower margin of the collar either by notching with the finger nail or impressing with a cylindrical object, but the unthickened rims are usually entirely undecorated. Only six are notched at the exterior margin of the lip or incised across the lip, and two additional specimens, one of them a rim sherd with a loop handle, bear incised rectilinear body decoration. The latter two are the only representatives of a black, flaky, shell-tempered ware which is occasionally found in small quantities in sites of Nebraska aspect affiliation[4] and whose provenience is mainly farther east in the Mississippi Valley. Loop handles and lugs, although not numerous, occur on seven fragments which, with one exception, have unthickened flaring rims. The single exception is the unusual combination of a strap handle with a collared rim. While the others are attached to the lip and to the shoulder area below the neck, the attachments of this handle are at the lower margin of the collar and at the neck. Of the four lugs, one is a simple tongue-like projection of the flaring rim, another, of uncertain form because of its fragmentary nature, is vertically perforated, while the others occur on one of the restored vessels from House 2. These latter, which are oppositely placed below the lip of the slightly flaring rim, resemble loop handles, horizontally placed (Plate XV, 1). This vessel is remarkable in that the neck is more than usually constricted, and the mouth is as a consequence relatively narrow. With a body measuring 172 mm. (6¾ inches) in diameter and a height estimated at the same figure, the mouth measures only 80 mm. (3⅛ inches) across. Other unusual forms are indicated by only a few fragments. Two sherds, one from each of the houses, have apparently belonged to straight-sided bowls, but other than in form they are similar to the dominant

[4]Strong, 1935, pp. 255-256.

pottery here. Two brick-red fragments, one of which is illustrated in Plate XVI, a, are from a relatively large pot with an unusually high (50 mm., 2 inches) contracting rim and a rather narrow mouth.

A specimen which is particularly interesting because of its distinctly incongruous appearance in the series from this site is a fragment of a straight-sided vessel with a straight rim and a flattened lip which was found on the floor of House 1 (Plate XVI, l). The paste, heavily tempered with crushed stone, is coarse and granular, while the exterior surface appears to have been cord roughened prior to the final smoothing. A single row of round punctations made with the end of a cylindrical object encircles the body 20 mm. (¾ inch) below the lip, the intervals between the marks measuring about 20 mm. This sherd is completely out of place here and is characteristic of no complex thus far defined in Nebraska, but is rather suggestive of certain Woodland manifestations to the east. Whether it represents an importation, an accidental inclusion from an earlier occupation of the region, or an artifact of these people themselves it is impossible to say, but the clay used appears to be similar to that from which the rest of the pottery was made. Pottery of Woodland type has been previously noted at a few points in the state, the best known of which is the Walker Gilmore site in Cass County, where a buried habitation site has been exposed by the recent cutting of Sterns Creek.[5] The Historical Society Survey recovered a pot somewhat similar to those occurring there from a house in an Upper Republican site,[6] and three large conoidal vessels from southeastern Nebraska are in the Museum. At the present time the Survey has on record the location of a number of sites at which pottery of apparent Woodland affiliations occurs. That these manifestations have a wide distribution will be apparent from the following list of counties in which they have been observed: Boyd, Butler, Cass, Chase, Franklin, Harlan, Hooker, Johnson, Lincoln, Platte, Red Willow, Richardson, Sarpy, and Saunders. In some instances a few sherds have been found on the surface, but in others, pottery of this sort occurs in deep exposures of recently cut banks. No general statement can be made concerning the temporal relationships of these manifestations to those of other cultures of the region, for, while it is apparent that at certain sites (as Walker Gilmore) the Woodland is earlier than an overlying occupation, they need not all have been contemporaneous, especially in view of the fact that in some cases there are rather wide differences. The specimen from Fremont 1 is practically identical with pottery from a deep site in Platte County, but is quite different from that of the Sterns

[5]Strong, 1935, pp. 184 ff.
[6]Wedel, 1935, pp. 188-189.

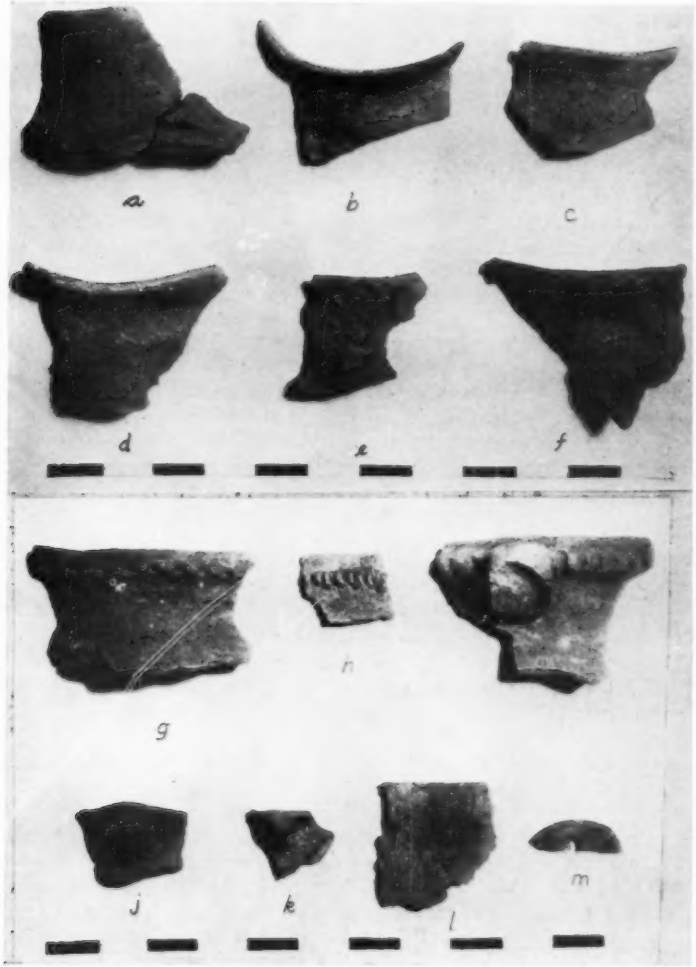

PLATE XVI

Rimsherds and handles, Fremont 1 site.

Creek Culture. Investigation of such sites is highly desirable in order to elucidate their relationships to the already defined cultures of the region, and may throw some light on certain apparent Woodland elements in the pottery of the latter.

Work in Stone

Objects of stone, while not profuse, are more numerous than in the Champe site house. Ground stone is most abundantly represented by abraders of Dakota sandstone, and of these, grooved shaft smoothers are most numerous. The latter are represented by one complete specimen and seven fragments, all of them apparently from boat-shaped implements. All of these have on one surface a single uniform longitudinal groove, but three of them have in addition irregular grooves on the remaining surfaces, which are evidently the results of grinding pointed objects. Three irregular fragments have only the latter type of grooves and exhibit no evidence of ever having served in smoothing arrowshafts, while simple ungrooved abraders are represented by two fragments, one of which has one slightly concave face. A small fragment of hematite bearing on one surface a broad smoothly-worn groove was presumably also used for some sort of grinding or smoothing.

Ground celts of diorite number only two, both of them from House 1. The sides of the complete specimen, which is 100 mm. (4 inches) long and 54 mm. (2⅛ inches) in greatest width, taper from the bit to a narrow butt, but those of the fragmentary specimen, which is 54 mm. (2⅛ inches) wide, are parallel, while the form of the butt is not determinable. The latter celt has been intensively ground only in the region of the bit.

All of the five hammerstones found have been modified to some extent by grinding, possibly in some cases to adapt them to use as smoothing implements. An oval specimen of diorite with rounded battered edges has one slightly pitted face, while the other face is more deeply pitted and is longitudinally traversed by a narrow groove (Plate XVIII, g). Two water-worn pebbles have flattened surfaces, and this surface of one is somewhat pitted by percussion. A quartzite object with a circular outline and measuring 85 mm. (3⅜ inches) in diameter by 40 mm. (1⅝ inches) in thickness, has been smoothly ground into shape. The two faces are flat and the edges have been beveled from each face to a well-defined ridge which constitutes the entire circumference of the artifact. A quartzite pebble has had an edge similarly ground but to a lesser degree, and no other shaping appears to have been done. Material for paint appears to have been removed from a few fragments of hematite.

Of the seven arrowpoints from the two houses all are tri-

angular and five are notched. Four of the latter have two side notches and a concave base, while the fifth has four side notches and a basal notch. These points range in length from 21 to 38 mm. (⅞ to 1½ inches) in length and in greatest width from 12 to 15 mm. (½ to ⅝ inch). The single complete unnotched point is 41 mm. (1⅝ inches) long and 20 mm. (25/32 inch) wide at the base. In all cases all surfaces and edges are relatively well chipped.

House 1 produced six drills or gravers, an unusual number for sites of this culture. With the exception of one T-shaped specimen, they are of irregular form with expanding bases, and one has an additional short point worked on one side (Plate XVII, o). In but three cases both faces have been worked; in the others one face consists of the unretouched original flake surface.

The most common chipped flint artifact is the end scraper, of which twenty specimens were recovered. While the majority tend to be thick, with the medial ridge formed by flaking from each edge, a few specimens have a thin cross-section as the result of the removal of large longitudinal flakes. There is little uniformity in form and size, and the range is from a short wide specimen with a length of 33 mm. (1⅜ inches) and a width of 25 mm. (1 inch) to a long narrow scraper 72 mm. (2⅞ inches) long and 21 mm. (⅞ inch) wide. The majority, however are triangular and of medium length and width.

The knives and scrapers are in general rather crudely made, and are most commonly roughly leaf-shaped. Diamond-shaped or beveled knives are lacking. The largest of the knives, a rather carefully worked but broken blade, is 120 mm. (4¾ inches) long, 48 mm. (1⅞ inches) wide, and about 3 mm. (⅛ inch) thick (Plate XVII, p); none of the other specimens approaches it in size or care in manufacture. The remaining seven knives of this type, which are either pointed at both ends or have one straight end, vary in length from 55 to 95 mm. (2⅛ to 3¾ inches). Another relatively well-chipped knife has a flat base, but the remainder of the knives and scrapers are of irregular forms which have been dictated by the shapes of the flakes from which they were fashioned. Many of them have been retouched only on one or more edges.

Three small chipped celts, each narrowing from a rounded blade to a pointed butt, were found in a pocket dug in the wall of Cache 2 in House 1. The smallest measures 82 mm. (3¼ inches) in length and 44 mm. (1¾ inches) in greatest width, while the largest is 94 mm. (3¾ inches) long and 47 mm. (1⅞ inches) wide.

Work in Bone

Implements of bone were not found in large quantities in the

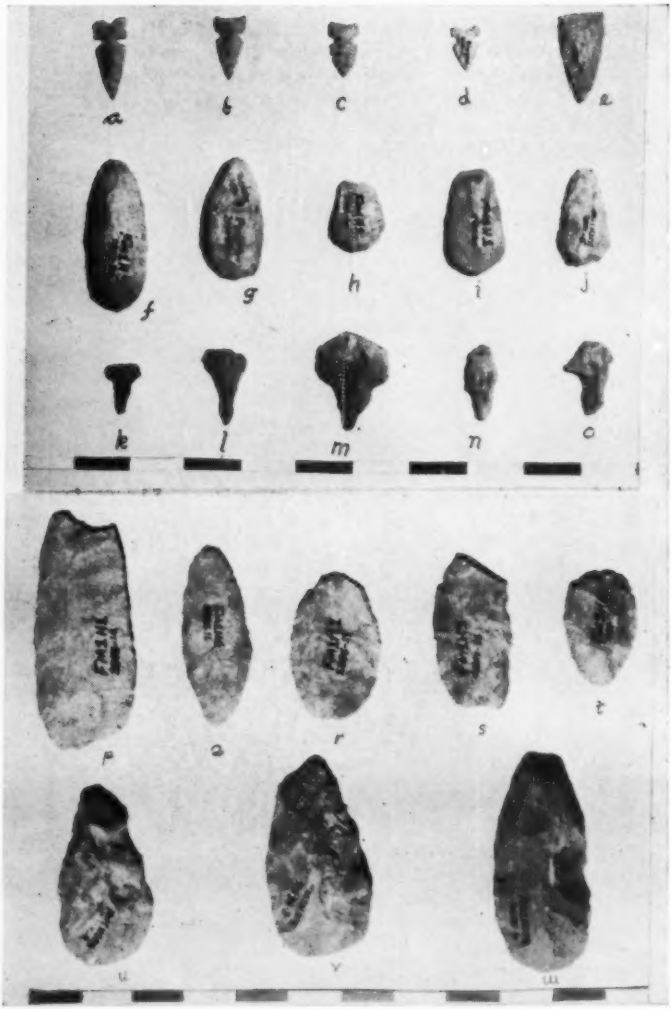

PLATE XVII

Chipped stone artifacts, Fremont 1 site. a-e, arrowpoints; f-j, end scrapers; k-o, drills; p-t, knives and scrapers; u-w, celts.

Fremont 1 houses, but, aside from the fact that many of them were broken, they were in a good state of preservation. Although no complete hoes were found, fragments of worked bison scapula which had without question originally belonged to tools of this type are fairly numerous. They indicate that the scapular spine was broken and ground off and the vertebral border trimmed down and sharpened. Probably as evidence of hafting, worn notches are present on the edges of the tool near the blade and the glenoid border is smoothly beveled. A broken cleaver-shaped knife or scraper has been fashioned from a scapula which had previously been used as a hoe (Plate XVIII, k).

Two bone awls, one of which is broken, are made from splinters of long bone. The complete specimen is 125 mm. (4⅞ inches) long and 8 mm. (⅜ inch) wide at the butt. A segment of bison rib about 363 mm. (14¼ inches) long has a sharp point worked on one end, and the polished tip of a deer antler 85 mm. (3⅜ inches) long probably served also as a perforator. A small object 45 mm. (1¾ inches) in length is round in cross-section with a diameter of about 4 mm. (⅛ inch) and tapers to what was probably a point before its fracture (Plate XIX, b). The other end is flattened on two sides to create a chisel-like appearance, and on one of the resultant narrow sides two small notches have been cut. This object probably served as a needle.

A single shaft straightener made from a bison rib, one end of which has been cut, has a well worn perforation. Another cut segment of rib was evidently in the process of being split when lost or discarded, for a deep groove has been cut along each edge.

Other objects of uncertain use are a basal segment of deer antler, cut off but otherwise unmodified, and part of the left half of a deer mandible which shows a fairly high polish. The only other bones indicating any work are a few fragments of deer and bird bone bearing the marks of cutting.

Work in Shell

Despite the considerable numbers of shell which were present in the refuse filling these houses, only two artifacts of this material were recovered. Although one appears to have been broken in manufacture, both were evidently intended as pendants probably representing fish. The complete specimen (Plate XIX, h) is biconically perforated near the upper margin and the head is worked on both faces by incising and drilling for the eyes; two shallow notches are cut in the upper edge. The other objects, in which the eye is represented by a perforation, is broken along one of the incised lines behind the head, and a notch has been cut into the end opposite the perforation. This type of ornament is of frequent occurrence in Nebraska Culture sites,[7] and has been found in sites of the St. Helena focus.

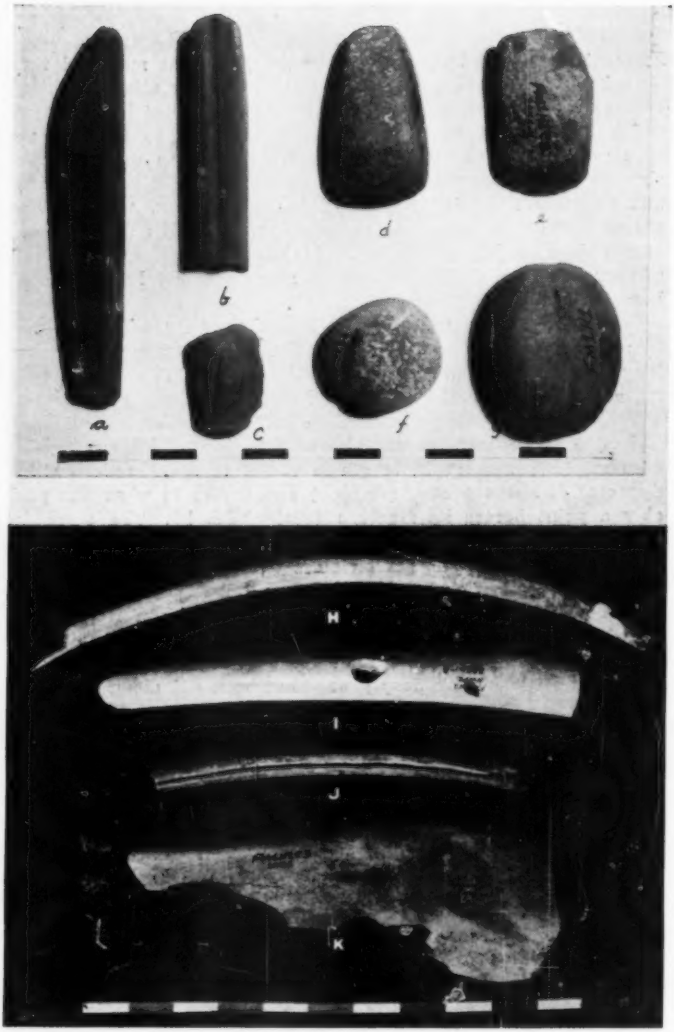

PLATE XVIII

Ground stone and bone artifacts, Fremont 1 site. a, b, arrow-shaft smoothers; c, sandstone abrader; d, e, celts; f, g, hammerstones; h, bison rib perforator; i, shaft straightener; j, partially split rib; k, bison scapula knife.

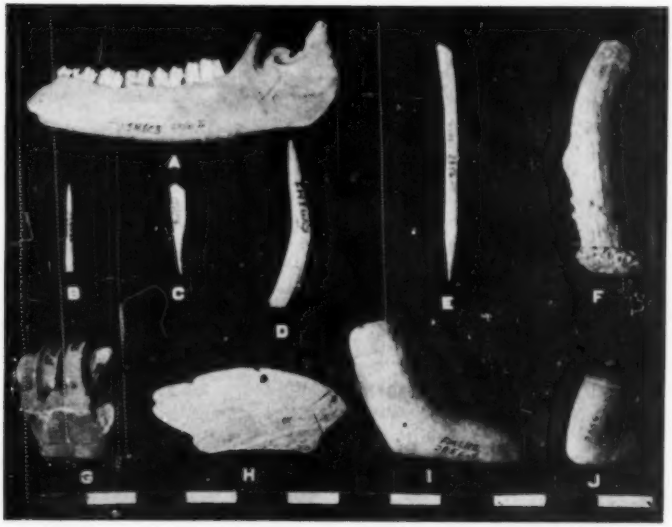

PLATE XIX

Stone, bone, shell and pottery artifacts, Fremont 1 site. a, polished deer mandible; b, needle (?); c, e, bone awls; d, antler awl; f, antler section; g, cut deer metapodial; h, shell pendant; i, pottery pipe; j, limestone pipe.

Pipes

Two pipes, both of elbow type but of different materials, were recovered from House 2. One, made of pottery, is obtuse-angled and equal-armed, both the stem and bowl measuring 65 mm. ($2\frac{9}{16}$ inches) in length. The bowl has a relatively uniform diameter of about 30 mm., ($1\frac{3}{16}$ inches), but the stem narrows nearly to a point. The bowl opening has a diameter of 15 mm. ($\frac{9}{16}$ inch), while the small stem perforation is 4 mm. ($\frac{5}{32}$ inch) in diameter. The other pipe, from which a portion of the stem is broken, is made of a rather hard, fine-grained limestone. The bowl, which is 23 mm. ($\frac{13}{16}$ inch) in diameter, is set at an obtuse angle to the stem, which is 18 mm. ($\frac{11}{16}$ inch) across. The bowl perforation is 15 mm. ($\frac{5}{8}$ inch) across, that of the stem 9 mm. ($\frac{3}{8}$ inch) at the point of fracture. An incised line encircles the bowl just below the lip and another extends around the sides and base of the stem at its juncture with the bowl.

[7]Gilder, 1926, pp. 20-21, 23; Strong, 1935, p. 262 and Plate II.

CONCLUSION

It is obvious that the data from the Champe site and Fremont 1 represent the traits of an identical culture complex, and that the minor differences are such as are inevitable in two excavation units of a single village. The ceramics of the two units are indistinguishable, and significant differences in the other remains are lacking. Animal remains were rather rare in all the excavations, but the presence of numerous mussel shells and fish bones indicates a dependence on the river for an important part of the food supply.

The presence of human bones in one of the houses is especially interesting because of their reported occurrence at other sites in the region. Thus it appears that whatever activities were responsible for these conditions were probably not sporadic phenomena but well-established elements of the culture pattern. If this is true, the desirability of further work to determine the nature of the customs involved, their distribution, and their correlation with the remainder of the complex is apparent.

The broader outlines of the Nebraska aspect are fairly clear as a result of the various investigations to date, but many problems remain to be solved. Variations within the aspect are as yet poorly defined, and the problems of its relationships to other cultures of the region and its authorship are still unsolved. The area along the Missouri River on the eastern border of the state may prove to be the key to many now puzzling problems. Systematic excavations there should elucidate questions of cultural movements and developments within the state.

LIST OF TRAITS

Pottery

1. Grit or gravel tempering alone—97%; gravel predominates.
2. Wide variation in size of temper, but generally medium.
3. Tempering material usually abundant.
4. Shell occurs in about 3%, usually with gravel also present.
5. Potsherd fragments occur very rarely.
6. Hardness between 2 and 3. A large proportion falls slightly under 3. No difference correlated with tempering material.
7. Paste usually rather fine and compact with a tendency to flakiness; a small proportion with coarse abundant temper tend toward a crumbly structure.
8. Exterior surface color gray, buff, or orange-red, but gray or brownish-buff most common.
9. Interior surface usually gray.
10. Color of material between surfaces varies widely.
11. Surface of 46% of sherds roughened with cord wrapped paddle, remainder smooth.

12. Paddle marks usually more or less obliterated by subsequent smoothing.
13. Both interior and exterior surfaces commonly roughly finished, either with tool or hand.
14. Mouth and horizontal section of body invariably round.
15. Constricted neck.
16. Shoulder rounded.
17. Base rounded.
18. Simple straight or flaring rim (Form A)—88%.
19. Form A: Rims usually recurving and of variable height; very high rims almost lacking.
20. Form A: Lip usually rounded; occasionally narrowed or thickened.
21. Form A: 9% decorated.
22. Form A: Scalloping of juncture of lip and exterior rim or incised lip.
23. Collared rim (Form B)—10%.
24. Form B rims undecorated except for scalloping at lower margin of collar, which is always present.
25. Bowls with straight rims—2%.
26. Loop handles, probably 2 on a vessel. Almost invariably on Form A rims.
27. Handles most commonly strap-like and attached to lip and shoulder area below the neck.
28. Lugs, perforated or unperforated, rare. On Form A rims only.
29. Incised body decoration extremely rare.
30. Slip(?) rare.
31. Thickness of walls varies from very thin to very thick but 4-8 mm. (5/32-5/16 inch) most common.
32. Pot exteriors frequently smoke blackened and interiors covered with carbonized material.
33. Obtuse-angle elbow pipe.

Work in Stone

1. Arrowpoints small triangular, notched and unnotched.
2. Drills, expanding base and T-shaped.
3. End scrapers, keeled, usually triangular, medium size.
4. Leaf-shaped knives, pointed at both ends.
5. Leaf-shaped knives, straight base.
6. Knives and scrapers of irregular flakes.
7. Chipped celts.
8. Ground celts, oval cross section.
9. Sandstone arrowshaft smoothers and awl (?) sharpeners.
10. Ungrooved sandstone abraders.
11. Hammerstones, occasionally pitted or slightly shaped by grinding.

12. Hematite used for paint.
13. Acute-angle elbow pipe.

Work in Bone

1. Awls of split long bone and bison rib.
2. Bison rib shaft straightener.
3. Needle (?).
4. Scapula hoes.
5. Scapula hoes—inferior articulation present, and glenoid border beveled.
6. Scapula hoes—notched edges.
7. Scapula hoes—spines removed.
8. Scapula knife of cleaver shape.

Work in Shell

1. Worked shell rare.
2. Fish (?) effigy pendants.

Houses

1. Semi-subterranean.
2. Outer posts set immediately within the walls of pit.
3. Approximately square with rounded corners.
4. Four central roof supports.
5. Central fireplace.
6. Interior caches.
7. Long entrance passage.

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NEBRASKA STATE HISTORICAL SOCIETY

Founded August 26, 1867.

Reorganized September 25, 1878.

The Nebraska State Historical Society started September 25, 1878, at a public meeting held in the Commercial Hotel in Lincoln. About thirty well known citizens of the State were present. Robert W. Furnas was chosen president and Professor Samuel Aughey, secretary. Previous to this date, on August 26, 1867, the State Historical Society and Library Association was incorporated in order to receive from the State the gift of the block of ground, later known as Haymarket Square, now Municipal Building Square. This original Historical Association held no meetings. It was superseded by the present State Historical Society which owns Historical Half Block, opposite the Nebraska State Capitol.

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